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## WASTE DISPOSAL FOR SMALL CITIES

Population as a Factor in Selecting Method—Primitive Methods—Burial on Dumps, Cremation, Incineration and Reduction—Dumping in Layers on Low Land and Covering with Earth Recommended

UNTIL quite recently the city of Davenport, Ia., had been disposing of its garbage by loading it on barges, by which it was towed out into the Mississippi River and there dumped. This method of disposal was stopped a few weeks ago by the U. S. Government because it tended to silt up the river, and the city was compelled to adopt some other method of disposal. On June 23 John W. Alvord of Chicago, who had been requested to report upon the matter, submitted recommendations to the city which in some respects were out of the ordinary, especially in that they called for no purchase or construction of expensive plant or apparatus.

Davenport has a population of about 43,000 and is situated upon the Mississippi River, along the bank of which, inside the city limits, is a considerable area of low-lying land which at present is put to no use. The city slopes continuously back from the river, so that all hauling toward the river from all parts of the city is down hill.

The amount of garbage at present collected in the city is found to amount to 15 tons or less per day. Its collection and disposal are carried on under the supervision of the Department of Health, and, with the exception of garbage from some of the hotels and restaurants and wastes from markets, etc., it is collected by the city in its own wagons. For the purpose of collection the city is divided into seven districts, each of which is served by one wagon. In five residential districts there are two collections a week from all premises, while in the two remaining business districts there are three collections a week.

Citizens are required to deposit their garbage in covered metal receptacles, which are kept in the alleys as a rule. The city removes the garbage in covered wagons of  $2\frac{1}{2}$  cubic yards capacity. These wagons are of steel, semi-cylindrical in shape and provided with a mechanical dumping device. The dumping is not complete even with a partial load, and it is necessary to fork the garbage out of the hopper. With a full load this extra work at the dump is still more noticeable, as the garbage is prevented from sliding out by the rear axle, which passes through the upper part of the hopper. As a rule, two men are employed in removing the garbage from wagons at the dump. Aside from this objection, these wagons, which cost \$265 each, appear to be quite satisfactory. Although the wagons are owned by the city, the teams are provided by the drivers, \$4 a day being paid for team and driver.

Such being the conditions found, Mr. Alvord considered the methods employed elsewhere, to determine which would be best adapted to the local conditions. When a community is quite small the disposal of the ashes and rubbish usually presents little difficulty, as they may be used for filling low places, grading up streets and other purposes of a like nature. As dump-

ing grounds become scarce and the length of haul increases the disposal of the rubbish becomes a problem, and possibly in the largest cities it is found necessary to provide artificial means for handling and disposing of every kind of waste which human society creates. It is obvious therefore that the problem of the village is not the problem of the small city, nor is the problem of the small city that of the large city. Consequently population as well as local conditions and opportunities require to be considered.

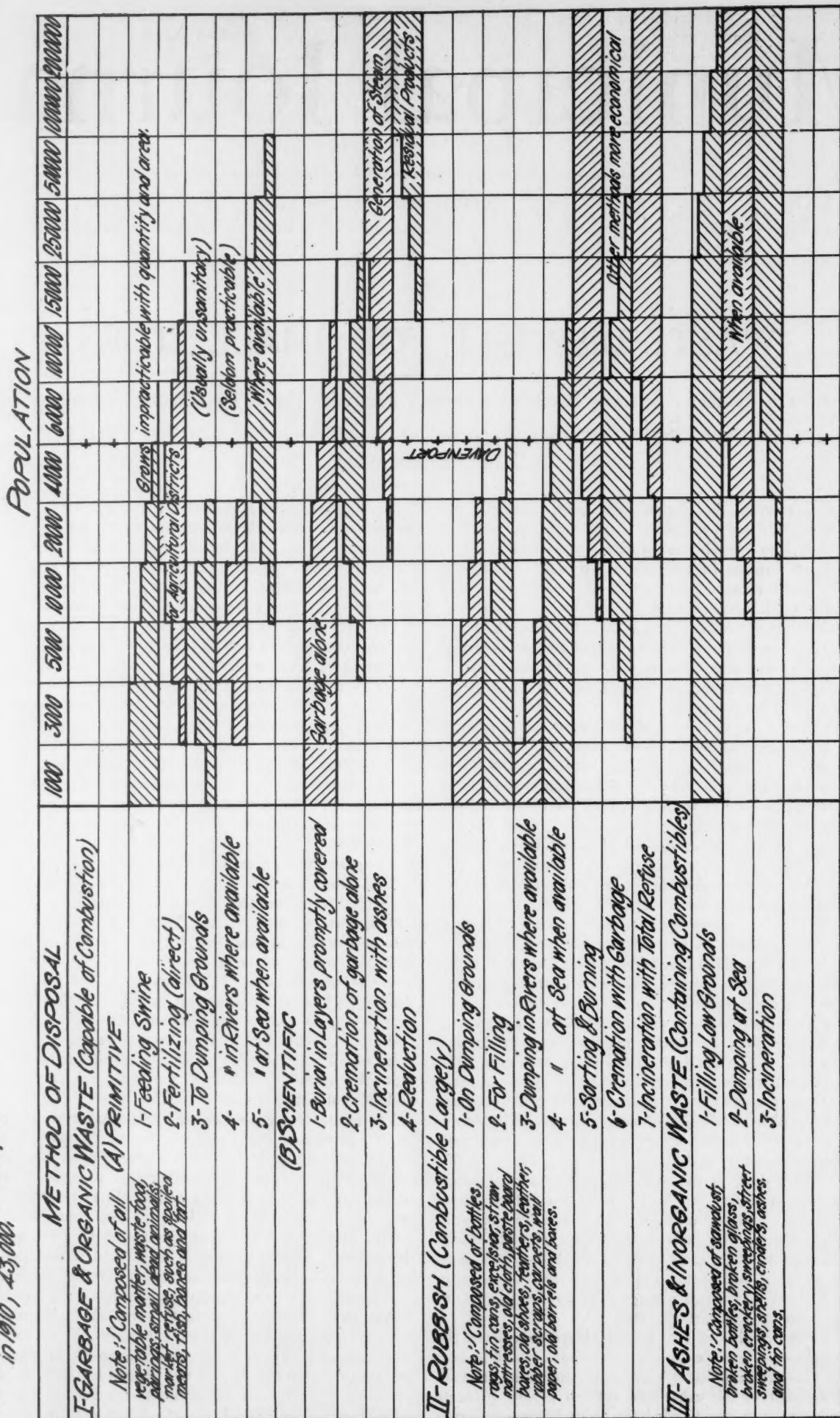
"From a sanitary point of view the disposition of garbage does not present serious difficulties except such as arise from the vast quantities which result from large populations. Certain simple sanitary requirements are necessary only, and it happens that the sensitiveness of the public to objectionable odors constitutes almost a guarantee that these simple requirements are not and cannot be neglected. It is seldom the case, it can be truly said, that the health of the community is much endangered by any reasonable method of disposal of its waste properly and energetically carried out.

"The prime consideration therefore, aside from certain simple sanitary requirements, is that of economy in the collection and disposal of such waste. With this principle in mind it became apparent at once that for small communities primitive methods, where sanitary, are almost always the most economical and efficient. In smaller cities the quantities to be dealt with become so great that primitive methods must begin to give way to a more complex method, involving organization and more expense, and in very large cities the enormous quantities of all sorts of miscellaneous material produced daily require that scientific methods of the highest order be introduced and efficiently maintained."

The primitive methods employed in smaller cities are stated to be feeding to swine, fertilizing, remote dumping, dumping in rivers, dumping at sea, etc. More scientific methods are burial on dumps, cremation, incineration and reduction. The first of these is described as being more sanitary and less offensive than any of the methods called primitive although it is itself a very simple one. The proposition is to bury the garbage by depositing it on low ground in layers and immediately covering it with an equally thick or thicker layer of fresh earth.

Cremation has been adopted in over 200 cities in this country in their earliest attempts to solve the garbage problem. Specially designed furnaces are necessary and the use of fuel, generally coal. There is no good reason why cremation with an admixture of fuel should not be successful if the furnaces are designed to operate properly and the management is good. It is, however, an expensive method, not usually warranted in cities of less than 10,000 or 20,000 inhabitants, and one which

Note: Population of Doverport  
in 1910, 43,000.





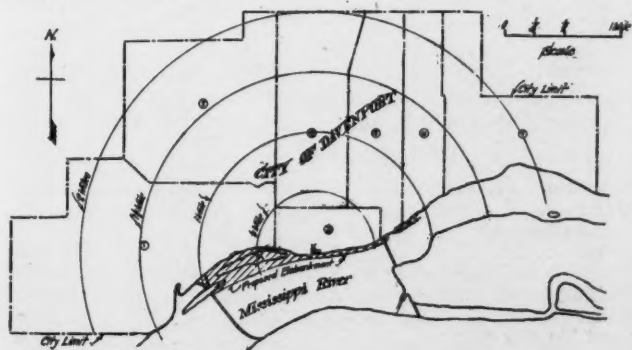
may be replaced by a more economical method in cities of over 100,000 to 150,000 inhabitants.

Incinerators, by which the mixed refuse of a city is burned and steam is created which can be used for power purposes, is usually found to cost from \$700 to \$1,200 per ton of capacity per day. If use can be found for the steam it is possible to reimburse the city in part or in whole for the operating expenses, but if no use is found for it (and it is sometimes difficult to do so) it is estimated that it would cost in Davenport at least 50 to 60 cents per ton for operating expenses, not including the cost of collection. It was believed by Mr. Alvord, from a study of the conditions in a number of small cities, that where methods of collecting the garbage separate from the other wastes and properly burying it are available, an incinerator may be properly postponed at least until such time as opportunity no longer exists for the more simple methods. With high collection costs and lack of a site for disposal by burial an incinerator may be warranted, but this usually comes only after the population reaches at least 40,000 to 50,000. In cities of 20,000 to 30,000 where suitable sites can be found for sanitary disposal by proper burial it is certain that the large first cost and operating expense of an incinerator is not usually warranted.

Concerning reduction, the report states that the best authorities consider that this is not warranted in cities of less than 100,000 to 150,000 population, and that in such cities the cost of the plant will range from \$1,500 to \$3,000 per ton of daily capacity. Moreover, the plants require careful and expert management to produce proper results.

Burial and reduction are applicable to garbage alone. The cremation process is applicable to garbage mixed with some fuel, while incineration is applicable to and requires the collection of all of the municipal wastes in order to destroy the same by combustion with success. This fundamental difference between methods should not be lost sight of in deciding upon which to adopt. A diagram was prepared by Mr. Alvord showing the relative availability of the various methods of disposal under average economical conditions. This diagram shows the population by figures along the top, and the vertical left hand column gives the various methods of handling the three classes of municipal wastes. A study of this diagram, it was stated, would show that, of the scientific methods of handling garbage alone, there were available for Davenport only two which could be properly and economically considered—burial in layers on suitable ground and cremation, with a possibility that incineration might be resorted to if burial is impossible. "Of these there can be no question, without going further into the matter, that if sites are available burial in layers is at least the simplest and most economical method that can be adopted, requiring as it does no large investment with resulting fixed charges, and no skilled operation."

Mention has already been made of the low lands along the river bank, which are not extensively used for any purpose at present and which are well away from any inhabited or residential districts. Moreover, these sites are fortunately owned by the city. Mr. Alvord therefore concluded that there was



COLLECTION DISTRICTS AND AREAS SUGGESTED FOR BURIAL

Hatched area indicates proposed river front reclamation. Sites proposed for burial are at the east end and center of this area and on island near west end.

no doubt whatever but that burial in layers on this land is the method of disposal which should be followed at present, until these facilities have been exhausted or the growth of the city has rendered them out of the question. He found three sites which could be reached by favorable streets and grades from all parts of the city, about five tons of garbage per day to be buried at each site. As garbage usually averages about two cubic yards to the ton, a day's collection, if spread in a layer 12 inches deep, would cover an area of about 30 square yards at each site. This should be promptly covered with fresh earth to a depth of not less than 15 or 18 inches, every day's garbage being covered on that day and allowed to dry out for several days before another layer is spread upon the top of the earth cover. "Under such circumstances it is found that in from six to nine months the greater part of the garbage has disappeared without any objectionable odors having been created, and tests have shown that in three or four years every vestige even of the more solid parts of the waste will have completely disappeared. If the soil is coarse and permeable, so that the liquid portion can readily drain away, the buried layers can be driven upon again safely within a few days; and sometimes where opportunity offers, with relatively dry garbage, layer after layer can be disposed of in this fashion. In order to be entirely unobjectionable rigid instructions should be followed as to cleaning the garbage carts thoroughly each day and then covering every vestige of the day's garbage on the day on which it is dumped. This should be done with fresh earth preferably, although the ashes are not objectionable for this purpose." The rubbish may be disposed of by burning or used for filling. The ashes are not collected by the city and are ordinarily dumped on low land. There are a number of streets which require grading up and low lying land where these ashes can be used to advantage.

Following the stopping by the U. S. Government of dumping in the river the city, on Mr. Alvord's recommendation, began carrying out this method of dumping in layers at a point on the river front. The city employed four men to help unload the garbage wagons and to cover the garbage, the total cost of the labor being \$8.50 per day. After being unloaded the wagons are thoroughly washed out with water by the drivers. An inspection of this site during comparatively hot weather this spring, when offensive conditions would be most likely to exist, appeared to show conclusively that the disposal was being carried on substantially without offense and was proving satisfactory. At times a slight odor could be detected, but not at any considerable distance beyond the immediate vicinity of the dump. The only difficulty anticipated was a shortage in the supply of earth for covering the garbage.

The quantity of garbage is at its height during the fruit season, when an average of about 15 loads a day is collected. This makes the average cost per load for collection \$1.86. In the city of Milwaukee, with a longer haul, the cost in 1907 was \$1.50. The cost of covering the same amount of garbage per day with the present force would be 56½ cents per load. As the loads would probably average about 3,000 pounds, this gives the cost of covering per ton about 37½ cents. In winter, when the quantity will be smaller, the cost per ton will apparently run higher. It was thought, however, that by good management the cost ought to be cut down to 25 cents a load.

In connection with the report there were submitted some data concerning high temperature incinerators and the reduction plants at Columbus and Cleveland, which were as follows:

Data on High Temperature Incinerators

Plant	Cap. Tons	Cost	Cost per ton	Type
Milwaukee ..... (1910)	300	\$209,000	\$700	Top charged (Mechan.)
Seattle ..... (1907)	60	38,000	600	Bottom charged
West New Brighton (N. Y.) ... (1908)	60		about 1000	Bottom charged
Vancouver ..... (1907)	48	35,000	730	Bottom charged
Westmount (Montreal) ... (1906)	50?			Top charged

Average cost of construction of 26 bottom charged incinerators, mostly British, = \$569.60 per ton.

Average cost of construction of 22 top charged incinerators, mostly British, = \$615 per ton capacity.

#### Operation:

Average tons per man-hour in well designed bottom charged incinerators .....0.75 tons

Average tons per man-hour in 6 top charged incinerators ..... .98 tons

Average tons per man-hour at Seattle incinerator.... .83 tons

Average tons per man-hour at Vancouver incinerator...1.00 tons

#### Cost of Operation:

\*Westmount, gross during trials.....\$0.80

Seattle, net per ton..... .79

Milwaukee, total cost per ton..... .407

\*Revenue, \$5,000 per year.

#### Repairs per ton rated capacity:

Approximate cost of repairs for 15 bottom charged incinerators.....\$1.50 per ton per year

Approximate cost of repairs for 9 top charged incinerators ..... 7.90 per ton per year

Evaporative results (pounds of water evaporated per pound of refuse from and at 212°):

Average 20 bottom charged incinerators.....1.67 pounds

Average 16 top charged incinerators.....1.27 pounds

Seattle .....1.00 pounds

West New Brighton (N. Y.).....1.32 pounds

Milwaukee (max.) .....1.45 pounds

Milwaukee (min.) .....0.96 pound

#### Data on Garbage Reduction Plants

(Most of these are privately owned and cost data are not available.)

##### Municipal Plants:

###### Columbus, Ohio.—

Built, 1910.

Capacity, 80 tons.

Cost, approx., \$250,000.

Cost per ton rated capacity, \$3.130.

Treats 30 to 50 tons garbage per day.

###### Cleveland, Ohio:

Purchased about 1905 from private company.

Total investment, including expenditures for plant during five succeeding years, \$225,000 = \$1,550 per ton on basis of 45,000 tons collected per year and allowing 312 working days, giving average of 145 tons per day.

Revenue claimed:

First year ..... 7%

Second year .....22%

Third year .....40%

Net profit that may be made per ton, \$3.46.

### MUNICIPAL ACCOUNTING METHODS

As we stated some weeks ago, ex-Comptroller of New York Herman Metz has provided a fund known as the "National Fund for Promoting Efficient Municipal Accounting and Reporting," which is in charge of the New York Bureau of Municipal Research. At the convention of the National Association of Comptrollers and Accounting Officers recently held in Washington, D. C., radical exception was taken to the plans which this fund is being used to introduce, these being in general:

1. That because a municipality is not a money-making concern the same accounting and reporting problems that are found in private concerns are not present.

2. That the test which determined whether certain assets and certain liabilities should appear in the balance sheet is whether one could be used to liquidate the other.

3. That an authorization to incur liabilities is a liability in fact and should be so stated in a balance sheet, and that therefore the contingent liabilities for contracts and open orders could be left out of consideration.

4. That permanent properties, lands, buildings, etc., and bonded debt should not be included in a balance sheet.

5. That no differentiation should be made between cash held for current operation, cash held for outlays for permanent properties and cash held for trust purposes.

On the other hand, Messrs. F. A. Cleveland, Harvey S. Chase, LeGrand Powers and others held:

1. That although a municipality is not a money-making concern its administrative problems are nevertheless like those of a private concern and it therefore requires the same kind of information about its business operations and financial condition.

2. That because permanent properties cannot be converted

into cash to pay off bonded debt is no reason why these assets and liabilities should not be shown in balance sheet form.

3. That an authorization to spend money does not constitute a liability, since no liability is created until contracts are awarded and open orders are issued, and that the unexpended portions of authorizations should be shown on the liability side of the balance sheet as a part of, or a reservation from, surplus.

4. That not only should accounts be kept of properties acquired, but that these properties, properly classified, should be shown in the balance sheet so that there may be one final summary from which inquiry may proceed in whatever direction or for whatever purpose desired.

5. That every municipal transaction involving the outlay of money has two distinct accounting aspects: On the one hand, a fund account establishing a limit of expenditure has to be charged, and on the other, an expense or asset account has to be charged as in any other business.

### ASPHALT REPAIR PLANTS

THE city of Boise, Idaho, has in service 111,406 square yards of asphalt pavement, on 40,161 square yards of which there is a ten-year guarantee which will expire Dec. 31, 1913, and Jan. 31, 1914. Other considerable areas will come under the direct care of the city during the succeeding years, the guarantees under later contracts being for five years only.

Apparently the contractors who have these long term guarantees are refusing, or at least failing, to keep up the maintenance; but the contract provides that on their refusal to do so, after having received a written order, the city may repair the pavement and charge the same against them.

In anticipation of the necessity which the city will be under to maintain a large amount of asphalt pavement, Assistant City Engineer J. B. Marcellus has reported upon the purchase of a repair plant by the city to be used for this purpose. He also suggests that such a plant can, with some modifications, be used for repairing bitulithic pavements also.

A plant is proposed at this time which can be used for repairing the cuts made for reaching the water and gas pipes. Between Sept. 8, 1909, and June 21, 1911, 584 permits were issued for excavation in the streets, 105 of which were for cuts in the pavement, and in case of leaks three or four cuts were sometimes made on one permit. "It is to repair such cuts that we now really need an asphalt plant. It would be cheaper for the company making the cuts, because a cut which is left for six months grows ordinarily 100 per cent. and may become a menace to the public." Mr. Marcellus has estimated the cost of a plant for repairing cuts as follows:

1 Reheater .....	\$300.00
6 Smoothers, at \$3.50.....	21.00
6 Tampers, at \$3.....	18.00
6 Axes, at \$2.....	12.00
6 Sea-weed brooms, at \$1.25.....	7.50
2 Camel hair brooms, at \$5.....	10.00
3 Picks, at \$1.25.....	3.75
3 Asphalt buckets, at \$1.....	3.00
1 Hand roller .....	50.00
	<hr/>
	\$425.25
Miscellaneous, 10%.....	42.52
	<hr/>
	\$467.77

Although probably the city cannot, under its present charter, construct pavements in competition with contractors, the cost of a plant which would be adequate for performing such work is estimated as follows:

Real estate .....	\$500
Building .....	1,000
Plant Machinery:	
1 Drum .....	\$500.00
1 Hot and cold sand elevator.....	100.00
1 Melting kettle .....	250.00
1 Mixer .....	150.00
1 Sand bin, 6 x 8.....	100.00
1 Screen .....	100.00
1 Motor .....	350.00
Etc. ....	450.00
	<hr/>
	\$2,000.00



**Street Tools**

6 Smoothers, at \$3.50.....	21.00
6 Tampers, at \$3.....	18.00
6 Axes, at \$2.....	12.00
6 Sea-weed brooms, at \$1.25.....	7.50
2 Camel hair brooms, at \$5.....	10.00
3 Picks, at \$1.25.....	3.75
3 Asphalt buckets, at \$1.....	3.00
6 Racks, at \$1.50.....	9.00
12 Shovels, at \$1.50.....	18.00
1 10-ton Roller.....	2,000.00

Miscellaneous, 10%.....  
\$5,602.25  
560.22

\$6,162.47

Reference is made to the experience of Marion, Ind., in repairing asphalt pavements, this city having conditions similar to those in Boise City. "They found in past experience that to rely on the asphalt company to do their repair work it was necessary that the streets become quite bad before the asphalt people would come in and repair them, as the repair yardage was so small that it would not pay them to bring a plant to the town, even though the street was under guarantee. In September of 1908 the city took over all maintenance. They purchased a Hooke reheating plant and a carload of asphalt and a 700-pound hand roller, the total cost of the plant being \$625, without hand tools. From July 20, 1908, to Nov. 28, they laid 4,142 sq. yds. of patches at 85 cts. exclusive of foundation. The following year the cost was \$1.02 because of the smaller patches."

**INSTRUCTION IN CITY PLANNING**

IN 1900 Harvard University began teaching landscape architecture and in 1903 created a chair in this subject. The professorship was held by F. L. Olmsted until 1907, when he was succeeded by J. S. Pray, the former continuing his connection in a consulting capacity. The department was constantly receiving applications for men trained in city planning, and in 1910 Prof. Pray gave, for the first time, a course in the Principles of City Planning, illustrated by a critical study of examples. It is essentially a research course, with lectures and assigned reading. The lectures aim to cover, in theory, the general field of city planning; to show certain of the more important causes that have determined the forms and arrangements of city plans and deduce fundamental principles of organization. A student can begin at any time and advance as rapidly as his preparation, capacity and time available permit.

**WOOD STAVE PIPE**

Abstract of a paper before the Convention of the American Water Works Association. By T. Chalkley Hatton.

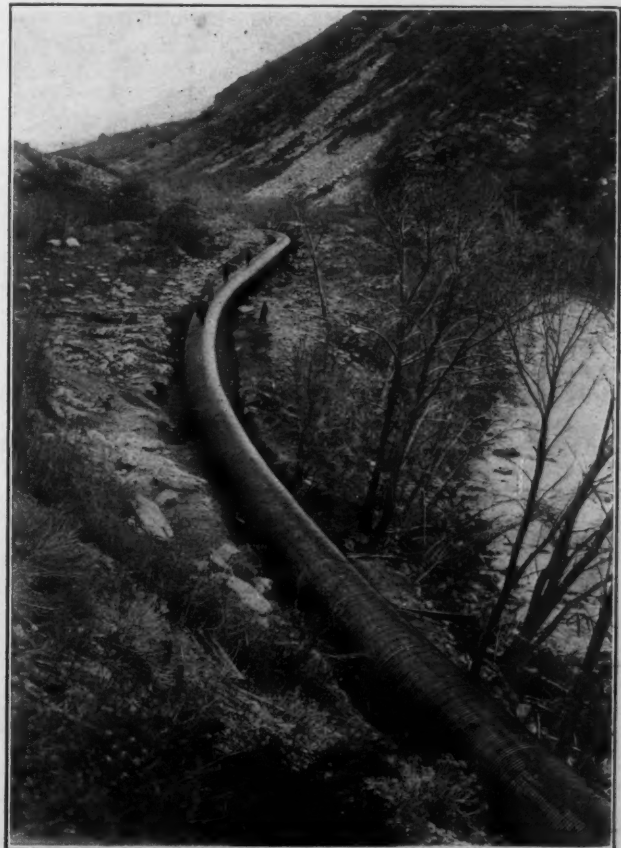
THE author of this paper stated that he had been surprised to learn that many engineers either do not know of the existing uses of wood pipe or are too bound to the older traditions to take advantage of its possibilities. He cited one case where the cost of cast iron pipe for bringing water for several miles through the mountains had practically led to the abandonment of a project, which it was later found practicable to carry out with the use of wood pipe at a great saving in cost.

The old style of bored logs is no longer used, but modern wood pipes are constructed of staves, the pipe being either constructed at the works and shipped complete in desired lengths, or the staves are assembled on the ground and the pipe practically built in place. In each case the strength for resisting bursting pressure is contributed by steel bands placed around the outside of the pipe. In pipes built at the works these bands usually consist of long strips wound spirally around the pipe and fastened at the two ends. Where the pipes are built in place, of continuous staves, the bands consist of hoops, the ends of each band passing through a malleable iron shoe and being drawn up tight or "cinched" by nuts threaded upon the two ends. Each stave has a bead running along one edge which presses into the edge of the adjacent stave, making a tight joint. In general it may be said that the continuous pipe is used where the diameter exceeds 24 to 36 inches and the machine made pipe for the smaller sizes.

One advantage of the separate bands is that a local leak can generally be stopped by cinching up the bands in its vicinity. The various pressures to be withstood are provided for in the case of these pipes by varying the size and spacing of the bands. Pressures up to 200 pounds per square inch have been provided for. Beyond this pressure it is likely the water would escape through the pores of the wood. Some experiments were made by the writer of the paper on the pressures which wood pipe would withstand; at 250 pounds water was found oozing through the walls of the pipe, and at 300 pounds it spurted in small streams at a few of the longitudinal joints, with a few leaks at the transverse joints. When the pressure was withdrawn and again brought up to 100 pounds it was found that the leaks had entirely stopped. Should the elastic limit of the steel bands be exceeded, however, this probably would not be the case.

If the wood is kept continuously wet there seems to be no danger of its decaying, and the life of the pipe will be that of the bands. There are well-known illustrations where steel-banded pipe has been in continuous operation for fifty years without apparent deterioration; and the writer stated that industrious inquiry made by him had failed to reveal a single case where steel bands on machine-made pipe had given way. A factor of safety of at least three should be used in designing the bands to allow for pitting and similar deterioration. Where oxidizing agents are known to exist, such as in salt marshes, salt water or sulphur deposits, the pipe should be banded together with copper-clad steel wire, which is cheaper than solid copper wire, has an elastic limit of about 50,000 pounds and a co-efficient of expansion less than two-thirds that of copper. The writer stated that he knew several cases where wood stave pipe wound with such wire had been successfully used where cast iron and steel pipe were very unsuccessful.

Owing to the smoother interior surface of wood pipe than of cast iron, experiments seem to indicate that the capacity of the former is 10 to 25 per cent greater than that of the latter, the interior diameters being equal. Comparing the



74-INCH WOOD STAVE PIPE, WEBER CANON, UTAH.

weight of the two kinds of pipe, wood pipe 8 inches in diameter weighs about one-third as much as cast iron of the same size, and that 30 inches in diameter weighs about one-sixteenth as much as cast iron. This would reduce the freight charges and other transportation cost proportionally. In laying, the cost of lead and hemp and other joint-making expenses are eliminated. Some illustrations of cost of wood pipe are given. Twenty-three miles of 30-inch continuous wood stave pipe laid for Lynchburg, Va., cost for furnishing and laying, exclusive of trenching and back filling, from \$1.82 to \$2.10 per foot, according to spacing of bands. A 42-inch continuous wood stave pipe at Atlantic City (cost conditions as above), \$2.25 per foot. A 24-inch machine-made pipe at Carney's Point, N. J., cost \$1.32 per foot.

The object of the paper was not to recommend wood pipe for all cases and conditions, but to call attention to its availability and superiority to cast iron under certain conditions.

## TRADE WASTES AND SEWAGE DISPOSAL

### Effects Produced in Several Connecticut Disposal Plants by Iron, Silk Mill and Woolen Factory Wastes— Separate Treatment Suggested

The report of the State Board of Health of Connecticut for 1910 contains brief statements concerning the operation of a number of the sewage purification plants in that State, and in several of these mention is made of the effect of trade wastes upon the efficiency of the purification plants. As the following abstracts from these reports show, the presence of such trade wastes as are found to enter the sewers in the several towns is uniformly detrimental to the proper operation of the plants.

In Bristol, although most of the manufacturing wastes are discharged directly into the Pequabuck river, the presence of oil and iron wastes, which at times are visible in the sewage, indicates that there are a few manufactories connected with the sewer. The average results for three months as indicated by analyses showed 81.1 per cent removal of organic nitrogen and a reduction in the oxygen-consuming power of 94.4 per cent. These analyses were made in the winter time, and it is possible that still better results would have been obtained in warmer weather. It was found at this plant that at those times when a considerable amount of iron waste was discharged into the sewer the filters tended to clog because of this.

In Danbury there are a few factories connected with the sewers, but these connections are being eliminated as rapidly as possible. Analyses continued through four winter and spring months showed that the filters were working very satisfactorily, giving a clear effluent with the organic matter well oxidized.

In Meriden sand filters give an effluent clear, practically colorless and quite thoroughly oxidized, more than 97 per cent of the organic matter in the original sewage being removed, as calculated from the organic nitrogen and the oxygen consumed. Practically none of the manufacturing wastes of the city are discharged into the sewer, but all are passed directly into Harbor Brook. "The absence of manufacturing wastes in the sewage makes biological treatment much more effective here than



INTERMITTENT SAND FILTERS, DANBURY



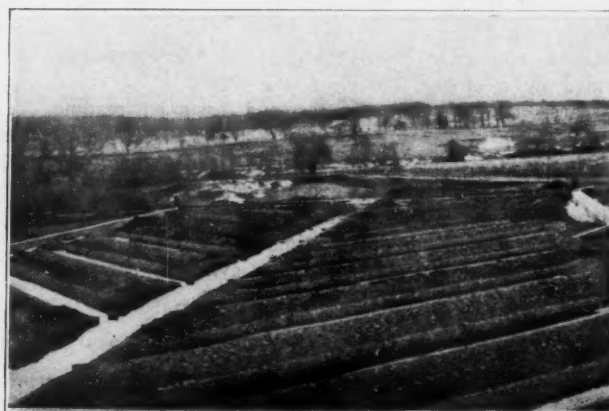
MERIDEN SAND FILTER

Showing Dosing Chamber and Method of Cleaning Beds

is the case in other places where the presence of such wastes seriously interferes with sewage purification on sand filters."

The new Britain filters "have gradually become clogged with iron from acid iron wastes discharged into the sewers and the filters are giving very poor results at the present time. Plans are now under way, however, to remove these wastes, and when this is accomplished the present area will be ample to treat the entire sewage flow of the city without difficulty."

At Rockville large amounts of manufacturing wastes from woolen factories and silk mills are discharged into the sewers, the daily volume of these wastes being said to exceed that of the domestic sewage. This plant contains six covered septic tanks and six contact beds. The latter were first operated in the usual way, but soon began to fill up with very stable material, mostly from the wool scouring wastes, and were then operated as continuous flow beds. The septic tanks at the time of inspection



CONTACT BED, ROCKVILLE

had stored such large amounts of scum and sludge, thus decreasing the capacity for flowing sewage, that the time of flow was too short and the velocity too great to permit of proper clarification. "Bacterial action both in the septic tanks and the contact beds is undoubtedly inhibited by the presence of some of the manufacturing wastes. The large volume of wool scouring waste discharged into the sewer makes the problem much more difficult than that of disposal of purely domestic sewage. In some cities in this country and abroad the factories have been compelled to partly settle or otherwise treat the worst portions of these wastes before discharging them into the sewers, and in certain cases to discharge wastes into the sewers only at stated intervals in order that they may be given special treatment at the disposal plant." It is suggested that some such arrangement be adopted at Rockville.

The sand filters in South Manchester are not giving satisfactory results, "principally because of manufacturing wastes discharged into the sewers from the Cheney silk mills. This waste contains large amounts of silk gum, soap, dextrine, dyes, acids and alkalies. The silk gum and dextrine form a gelatinous scum on the filters, making them almost water-tight in a very short time, and requiring frequent cleaning."



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### CONTENTS

Waste Disposal for Small Cities (Illustrated).....	33
Municipal Accounting Methods.....	36
Asphalt Repair Plants.....	36
Instruction in City Planning.....	37
Wood Stave Pipe (Illustrated).....	37
Trade Wastes and Sewage Disposal (Illustrated).....	38
Garbage Disposal by Burial.....	39
Municipal Efficiency Bureau.....	39
Slip of Pumps.....	40
Cleaning Catch Basins in Worcester.....	40
Red Water in Montclair.....	40
News of the Municipalities (Illustrated).....	41
Legal News—A Summary and Notes of Recent Decisions.....	49
Municipal Appliances (Illustrated).....	50
News of the Societies.....	52
Personals.....	54
Municipal Index.....	55
Industrial News.....	57
Patent Claims (Illustrated).....	59
The Weeks' Contract News.....	60

### Garbage Disposal by Burial

It is not often that a city which considers itself sufficiently large to employ an engineer of recognized ability to advise it concerning garbage disposal is advised by that engineer to adopt such a primitive method of disposal as burial, and the report made to the city of Davenport, which is abstracted on another page, is therefore in this respect an unusual one. It may be questioned whether the advocacy of disposal by burial would be endorsed for a city of this size by all of the engineers who have made a specialty of this subject. There are, however, undoubtedly very good reasons for the recommendations made. While there is still a question in the minds of many competent investigators whether any system has yet been devised, or at least worked out in detail, which can be considered to be perfectly satisfactory and even fairly economical, it behooves cities which can postpone, if even for a few years, the adoption of any of these expensive methods, to do so if they can find an alternative which is satisfactory from a sanitary point of view.

There are certain problems which arise even in connection with the comparatively simple plan of burial which may prove troublesome in operating under it. One of these was referred to in the report—the possibility that it may be difficult to obtain earth or other porous and inorganic absorbent in sufficient quantities and at the exact times necessary to permit of covering each day the garbage layer of that day. Another adverse argument may be advanced by some who will disagree with Mr. Alvord's statement that all but the small and most resistant portion of the garbage will have disappeared in six to nine months, as instances are on record where excavations in the garbage heaps have shown that years were not sufficient for this. It is true that in these cases the garbage was simply piled up and not arranged in layers alternating with absorbent material. But if the earth layer is at once or within a very few days covered with additional layers of garbage, so that air is excluded from it and oxidation cannot take place, it appears to us possible that the same delay in reduction of the garbage may be found. We believe, therefore, that it would be safer not to cover any absorbent layer with a second layer of garbage until the former has been given at least six months for oxidizing action. This would not be necessary, perhaps, if the ground is to be used for a park only; but if buildings are to be placed on it and cellars dug into it we believe this precaution should certainly be taken.

If the Davenport burial method is carried out under good management, with prompt and adequate earth covering, and if each layer is left exposed for at least six months, we do not anticipate that the results will be other than satisfactory. It will certainly be interesting to learn the cost and sanitary results obtained by this method of disposal carried on systematically on such a large scale.

### Municipal Efficiency Bureau

A COMMITTEE on Municipal Finance and Taxation of St. Louis, Mo., has just issued an eight-page pamphlet, the aim of which is to exert influence toward the establishing in that city of a Municipal Efficiency Bureau or, as it is more commonly called, a Bureau of Municipal Research. This committee has collected information concerning the workings of such bureaus in other cities. It found them actively at work in New York, Chicago, Philadelphia, Cincinnati, Milwaukee and Memphis. It defines such a bureau as "An institution designed to introduce into public administration the most economical methods of private business, to prevent waste and to provide an effective agency of citizens' inquiry—to ascertain exactly how the public business is being transacted, to bring this information to the people in digestible form, and on the basis of exact knowledge to assist city administration in increasing efficiency."

It comments at greatest length upon the work of the New York Bureau of Municipal Research, which is credited with having saved the city several millions of dollars, some of the largest items of this being \$400,000 from the Dock Department budget and \$300,000 to \$500,000 from the Fire Department budget. This bureau has reorganized from top to bottom the departments of Finance and Accounts, Division of Child Hygiene, Bureau of Licenses, Revenue control in Water and Park departments, Bellevue Hospital clerical staff and the control of violations of the Tenement House department. It has revised the city's accounting system, budget making methods, the method of computing school repairs and the city's debt, and the real estate bureau's records. It refers to the fact that ex-Comptroller Metz has donated a fund of \$30,000 to encourage the introduction of accounting methods in other cities similar to those which this bureau has introduced in New York.

The costs of maintaining the bureaus in the several cities have been as follows: New York, \$91,470, \$87,660, \$100,000 in 1908, 1909 and 1910, respectively; Chicago, \$55,000 in 1910; Philadelphia \$25,000 and \$30,000 in 1909 and 1910, respectively; Cincinnati, \$35,000 in 1910; Memphis, \$12,000 in each of the years 1909 and 1910; Milwaukee, \$25,000 in 1910. In New York the greater portion of the expenses is contributed by about one

dozen citizens, although there are between 100 and 200 smaller contributors. In Chicago, fourteen men subscribed \$114,000 and an additional \$3,000 was sent unsolicited, this sum to carry the work through two years. The Philadelphia bureau is supported largely by the contributions of a small number of men, as is the case in Cincinnati. The cost of the Memphis Bureau was obtained principally from small subscribers. Milwaukee is apparently the only city which supports such a bureau by public funds, \$25,000 being appropriated for this purpose.

The objects which it is hoped to obtain by such a bureau and the methods of procedure are outlined in this pamphlet as follows:

#### SPECIFIC OBJECTS OF THE EFFICIENCY BUREAU

1. To ascertain the powers and limitations of each city official; to eliminate conflicts of power and administrative jurisdiction, and to suggest methods of preventing waste and inefficiency.
2. To aid public officials in securing the information necessary to effective administration; to preserve such evidence of transactions as is necessary to locate responsibility, and to inform the public of service performed and the cost thereof.
3. To scrutinize the general system of accounting and make constructive suggestions for improvement.
4. To examine the methods of purchasing materials and supplies and the letting of contracts.
5. To improve budgetary proceedings and assist those who make appropriations in securing that classified and exact knowledge which is necessary to prevent carelessness and waste in appropriating the public funds.
6. To furnish the public with exact knowledge regarding public revenues and expenditures and thereby promote efficiency and economy in public service.

#### METHODS OF PROCEDURE

1. Confer with public officials and secure their co-operation and that of their subordinates in remedial work.
2. Prepare a digest of the powers and duties of the department or office by an examination of the statutes, ordinances and rules pertaining thereto.
3. Prepare a chart of each department or office showing lines of authority.
4. Examine the public records, analyze the information contained therein, and make collateral inquiry concerning matters in which the records may be defective.
5. Compare functions and expenditures with work accomplished and results obtained.
6. Hold frequent conferences between members of the Bureau's staff and also between the latter and public officials on methods used and facts disclosed.
7. Submit formal report to officials on organization, powers, duties and present methods of business procedure.
8. Submit critical report to officials and general public containing constructive suggestions and procedure incident thereto.
9. Continue educational work until something definite is done to remedy unbusinesslike methods disclosed. Assist officials in installing new systems recommended by the Bureau, or change in former systems.
10. Support publicity by verifiable data, illustrations, budget exhibits, etc.

#### SLIP OF PUMPS

In a discussion a few weeks ago before the New England Water Works Association several members related their experiences with the slip of pumps, which seemed to indicate that this is in many cases greater than is realized. The city engineer of Pawtucket, R. I., Geo. A. Carpenter, stated that he believed that the amount of slip in a large majority of pumps in municipal pumping stations is an entirely unknown quantity and yet the pumping records are used as a basis of most quantity calculations. He stated that a few years ago he investigated the consumption in a certain city and came to the conclusion that at least 50 per cent of the water indicated by the pump counters as being pumped could not be accounted for as being either used or lost by leaks and waste. In confirmation of this a large section of the city was later supplied through a meter on a 12-inch main delivering water to that section, and the per capita consumption was found to be only about 50 or 60 per cent of the per capita consumption of the entire city as indicated by plunger displacement.

Frank C. Kimball of Boston stated that in one plant investigated by him the superintendent, instead of using the plunger displacement to calculate the quantity of water which

was pumped, shut the inlet gate into the pump well about once a month and pumped a given number of revolutions and, noting the depth to which he drew the water, figured the amount pumped per revolution and used that quantity until the next occasion of testing the pump. Of the three pumps in this plant one showed about 6 per cent and another about 18 per cent difference between plunger displacement and measured pumpage. This superintendent does not use corrected plunger displacement to make a statement of slip, but divides the amount pumped from the well by the record of the revolution counter meantime, and thus obtains for use until the next test a coefficient by which to multiply the counter record. Wherever pumping is done from a well or gallery and the water can be shut off even for a limited time, say five minutes, this method will give a very much better result than mere plunger displacement, in Mr. Kimball's opinion.

Another member stated that he had learned that the slip might be a quite variable quantity, varying in one instance between 20 and 30 per cent. There were various causes for this, a common one being the lodging of a chip under one of the valves. His conclusion from this was that even though the slip of the pump be tested at frequent intervals, it still was not safe to figure on any great accuracy by the use of the revolution counter, but that the only way to obtain accurate results was to place a meter on the force main.

Robert S. Weston stated that he had heard that in a pumping station in Cincinnati there were some years ago three very old pumps which were kept working together; and that when, upon one occasion, one of these three pumps had been stopped, no water was discharged from the rising main into the reservoir, although the other two pumps continued at work. Three of the members cited instances in which valves on the discharge pipe from the pump were closed while the pump was operating, and the pump continued to work with little reduction in speed; this indicating that the plunger fitted so loosely that it merely churned backward and forward in the cylinder.

#### CLEANING CATCH BASINS IN WORCESTER

DURING the year 1910 the superintendent of sewers of Worcester, Mass., Matthew Gault, constructed 113 new catch basins, bringing the total number of these to 3251. From these there were removed during the year 15,800 cubic yards of material, or an average of about 5 cubic yards per basin. In addition to this, 580 cubic yards were removed from sewers. The material removed was carted to the nearest dump, but as these are becoming increasingly scarce the hauls are becoming longer and more expensive. To partly offset this a different form of cart has been adopted, the Watson dumping wagon having been substituted for the ordinary tip-cart. Mr. Gault reports the change as being very satisfactory, as "the team can haul a larger load. The sides of the wagon are lower, making the loading easier, and the streets are kept cleaner by the decreased slopping over the sides."

#### RED WATER IN MONTCLAIR

In the report of the Board of Health of Montclair, N. J., for 1910 it is stated that that city has experienced more or less trouble from the red water plague described at length in our issue of June 14. The statement of the chemist of the Board is as follows: "Several samples of town water from private residences were examined in January and the determination of the quantity of iron in solution made. Owing to complaints from consumers this was deemed necessary. The result indicated the presence of a considerable sedimentation of iron oxide as well as some held in solution. These results were found only in water from houses where galvanized iron boilers were in use. Several tests were made of water from houses where copper boilers were in use, with results showing the water quite free from iron."

This water is drawn from the Passaic River and is purified by a mechanical filter plant.



## NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Fire and Police Items—Government and Finance

## ROADS AND PAVEMENTS

## Developing Gravel Deposits in Tennessee

Knoxville, Tenn.—River gravel is a product that can be made of value in East Tennessee. With this in view the mineral and forestry committee of the Appalachian exposition called public attention to the importance of developing the deposit, and the companies handling gravel are advertising and shipping it quite a distance. Much has been shipped into Knoxville and its use is growing in demand. In the rivers and some of the smaller streams, there is a gravel that is firm and hard. All of this gravel is of the kind that makes good roads and wears well, and is free from dust. A road made from this gravel is cheap as compared with the macadam roads constructed.

## First Section of St. Louis Bridge Completed

St. Louis, Mo.—The completion of the first section of the St. Louis Municipal Bridge, constructing the four piers for the three channel spans, and the setting of a capstone on a pier were marked by appropriate exercises and the issuing of a souvenir program giving the history and a general description of the bridge. A bond issue of \$3,500,000 was voted, June 12, 1906. The Secretary of War approved the location May 20, 1909. Boller and Hodge were appointed consulting engineers May 25, 1909. The bridge is built both as a highway and railroad structure. There will be several



ST. LOUIS MUNICIPAL BRIDGE AS IT WILL APPEAR

approaches at convenient points. The highway structure carries a 30-foot road paved with creosoted wood blocks with two street car tracks and two six-foot sidewalks. The railroad structure carries two railroad tracks from end to end. The river spans are 2,022 feet long. The shortest approach is 2,467 feet long and the longest 10,663. The lowest post of the bridge over the river will be 65 feet above high water of 1903. The superstructure consists of three equal spans of the "Petit" type. These spans are the longest and highest single trusses that have ever been built and are further unusual as being the first long spans that have been built with all main members of nickel steel. The spans are being built with two decks, the upper the roadway.

## Test of Mohawk Lift Bridge

Cincinnati, Ohio.—The Mohawk lift bridge, which had to be reconstructed because of its refusal to lift, is about ready for test by City Engineer Shipley. The city engineers do not think there will be any question of its working properly. The bridge was completed last winter, but stuck high in air and refused to budge. The obstruction to traffic across the canal at that point brought loud complaints from merchants and teamsters, and after some weeks, permission was secured from the State authorities to lower the bridge pending the reconstruction. When this was done canal boat owners set up a howl, and the State Board of Public Works ordered the bridge raised. The State board was finally placated and the bridge permitted to remain at the street level pending the reconstruction.

## Street Improvements Started

Chester, Pa.—Chester is at last nearing the much wanted improvement in the way of a good street bed on West Third Street. The contractors have started to lay wood blocks. The street bed when completed will represent a four-inch concrete base laid on hard rolled earth. The street will be noiseless, durable, sanitary, clean and just what Chester has needed for about twenty years. It is the opinion of many that this little improvement in this city will mark the opening of a new era.

## Budget Exhibit Plans

New York, N. Y.—It has been announced by the Budgetary Publicity Committee that already several of the city departments have notified Borough President McAneny that representatives have been appointed to prepare their exhibits for the Budget Exhibit, which will be held next October. At the last exhibit, in 1910, in the old Tefft-Weller Building, nearly 1,000,000 citizens and taxpayers were interested. Preparations are now being made for many new features, and it is expected that the attendance this year will be even greater than last.

The Budgetary Publicity Committee, which is composed of the Borough President, the Controller and the President of the Board of Aldermen, has delegated the active preparation of the exhibit to the Budget Exhibit Committee. This committee is composed of Leo Arnstein, Secretary of the Borough of Manhattan; Benjamin F. Welton, representing the Commissioner of Accounts; B. G. Lewis, representing the Board of Aldermen; John L. Pultz, representing the Department of Water Supply, and Arthur McKinney, representing the Public Service Commission. The Chairman of the Budget Exhibit Committee is Robert B. McIntyre, Department of Finance, and the exhibit will be managed by Francis J. Oppenheimer. A meeting of this committee and the heads of city departments will be held to discuss preliminary arrangements for the exhibit.

## No Money to Build Bridges—Cannot Issue Bonds

Chicago, Ill.—A \$4,655,000 blunder will go down in the history of Chicago as the bitterest disappointment in the records. By the failure to comply with the law in voting in favor of bond issues which would pay for the many needed bridges over the Chicago River, the expected improvement plans will have to be abandoned. The ordinance directing that a proposed bond issue be submitted to the voters required that the question be submitted at a general election and no notice was given in advance that the question of the bond issue would be put upon the ballots. Consequently attorneys for bond houses and banks which had agreed to take the securities declared all the issues were invalid, in which opinion attorneys for the city agreed. The blow was particularly severe because the business interests of the city made a great campaign to insure the carrying of the bond issues and now all the money and effort spent in that campaign is found to be defeated through this blunder of some one. The dilemma is made worse by the fact that there now are no bridges across the river at several of the down town streets, and bridges in several other streets have been ordered out by the Federal Government and as many more have been condemned as unsafe.

## Will Try Asphalt Oil on Roads

Saginaw, Mich.—The County Road Committee of the Board of Supervisors, Road Commissioner John W. Ederer and Deputy Charles Gottschalk have returned from Bay City where they, in company with John H. Bloomsfield, engineer of the Bay County Road and Bridge Department, inspected the roads which have been treated with asphalt oil. Mr. Ederer said that he was much impressed with its appearance and was sure it prevented dust. Aside from this he did not care to express himself until he had tried it on some local roads. It will be used on trunk lines out of the city where it will be given a thorough test.

### Oil Sprinkling Heartily Endorsed

Syracuse, N. Y.—An application of oil to North Geddes Street under direction of Commissioner of Public Works Frank M. Westcott has been started. The city has purchased 6,500 gallons of road oil to be used on sections of streets where traffic is heavy and provisions are not made for water sprinkling. The oil applied to the streets is proving satisfactory in laying dust. When the first oil was put on the residents almost unanimously protested, but as soon as the oil got mixed with the dust the protests stopped. Alderman Charles A. Wolfarth, of the Third ward, says that no objections are now heard and the oil seems to be preferred to water sprinkling.

### Renumbering of Streets Favored

Detroit, Mich.—The oft-suggested campaign for a renumbering of Detroit's streets has been begun at last. The Board of Commerce made the plunge by sending out some thousands of hand bills, printed in red, asking for an expression of opinion in the matter. The circulars recite that Philadelphia, Chicago and other large cities have adopted the 100-to-a-block system. "It would mean that parallel streets would have corresponding numbers, block for block," continues the circular. "You would automatically be able to find any street number. For instance, 1200 Forest Avenue West would be twelve blocks from Woodward Avenue. Think of the saving in time for your delivery system, the benefit to your mail and newspaper service. Five leading local newspapers indorse the movement, likewise the Postmaster and the business men who have investigated. If Detroit adopts the plan, Woodward Avenue and Jefferson Avenue or the river will be taken as foundations for the system. Please let us have your opinion on the enclosed card. Yes or no." As indicated, ballots are being sent out with these circulars. The Board of Commerce hopes for at least 2,000 expressions of opinion. C. M. Burton, City Historiographer, says the present nondescript system grew up with the city and is wholly inadequate. Postmaster Homer Warren says that the change would be of immense assistance to carriers and would aid in quick distribution of the mails. The business men whose opinions have been obtained see great advantage to their delivery systems, and a saving in time and expense. The newspapers would gain a similar advantage in the delivery of their papers. Attempts to change the numbering system in the city have been made in the past, but there has never been a concerted effort by any well organized body. It is understood that the Board of Commerce will follow up its first suggestion with more literature and with up-to-date campaigning.

### Ordinance Providing Against Nuisances on Paved Streets

Hutchinson, Kan.—An ordinance has been introduced in the City Commission that will put a quietus on every character of vendor who has, under a light license, occupied portions of Hutchinson's paved streets. It was introduced at the instance of Mayor Frank Vincent and is calculated to put an end to common nuisances. The ordinance, if adopted, will prohibit shows, museums, stands, popcorn, peanut wagons and all kinds of fakirs from pursuing their callings on any paved street, including the sidewalks and parkings. It is provided that anyone convicted of violation of the law shall be guilty of a misdemeanor and be fined not less than \$5 nor more than \$50, for each offense, which, according to the terms of the ordinance, means for every day there is a violation.

### Paving Bricks Show Up Well in Tests

Altoona, Pa.—As a result of the tests thus far made at the city laboratory at Ninth avenue and Nineteenth street, the bricks to be used in the street paving are showing up well and the standard set in the specifications, concerning which there was so much discussion, will doubtless be maintained. The standard set in the specifications is 18 abrasion and two absorption. The absorption test will require 24 hours. The bricks are first thoroughly baked and then placed in water for 24 hours, the standard being judged by the amount of water they thus absorb. The tests are conducted by City Engineer Engstrom, and a large number of councilmen and other officials and citizens have been present to witness the tests.

### Paving Material Analyzed

Springfield, Ohio.—Members of the City Council have inspected the College avenue paving job, alleged to be defective, and as a result it is doubtful if further action will be taken in the case. Director Klein told the councilmen that, acting on his own initiative, he had had an analysis made of all the asphalt laid during his administration, a sample being taken from that laid each day, and sent to a chemist, who does much work for municipal and state governments, and the reports of these tests were on file in his office, open for the inspection of any who might be interested. In each case the tests showed the material used, whether asphalt or brick, came up to the specifications in every particular.

### Misdemeanors in Paving

Pottsville, Pa.—District Attorney W. F. Lyons has announced that the Chief Burgess and President of Town Council of Tamaqua will be placed on trial in Criminal Court next week, charged with misdemeanor in office, on the allegation that they refused to have certain property-holders lay pavements.

### Highway Commission Is Ready to Survey Duluth Project

Duluth, Minn.—Though he had understood that the commercial clubs in the different cities and towns involved intended to take up the Duluth turnpike project and push it, State Highway Engineer Cooley said last week that he had received no information since his return indicating that such had been done. As the State Highway Commission, under the law, has no initiative in such matters, it is up to the cities and counties through which the proposed highway would pass to take the first steps, among which would be requesting the commission to prepare preliminary surveys of the turnpike. The Public Affairs Committee of the Commercial Club will join with the Automobile Club in erecting signs on the proposed automobile road. The committee took action last week in offering to bear half the expense of erecting the sign posts. The St. Paul clubs will put in the posts from here to Hinckley, Duluth doing the rest.

### A Southern Good Roads Campaign

Sumter, S. C.—Those who are pushing the coming campaign for a \$150,000 issue of good road bonds are not going about it in any half-hearted way, but are giving it business-like attention. The movement was started at a recent meeting of the Good Roads Committee of the Chamber of Commerce. The Chairman of this committee is R. B. Belser, and last summer Mr. Belser made a successful race for the Legislature on a good roads campaign. He has attended many meetings and conventions in the interest of this work, and is an enthusiast on the subject. Fifty thousand dollars of bonds have already been authorized, and that leaves the balance of a similar amount to do the work that it is calculated will give Sumter a road system second to none. The campaign calls for many rallies at different points in the county at which speeches will be made by home men and road experts from other points. To arouse interest, the county has been posted with large notices announcing the dates of these rallies.

### Civic Organizations to Evolve Plan to Beautify City

Cincinnati, O.—A general committee of three from each commercial, business and civic organization of the city for the purpose of evolving a great central group plan for public buildings and the completion of the boulevard project will be the outcome of the meeting of the special group plan committee named by President Walter A. Draper, of the Chamber of Commerce. The committee met recently, discussed the matter thoroughly and adopted resolutions approving the plan of a group of public buildings in connection with the boulevard and a general system of improving and beautifying the city. President Draper will call the board of directors together, lay the report of the special committee before it and if favorably received will notify the organizations of the city and ask them to furnish three active men for membership in the joint committee for the furtherance of the group plan.



## SEWERAGE AND SANITATION

### Mayor's Message on Need of Sewerage

St. Augustine, Fla.—Mayor DeWitt Webb submitted his first message to the City Council last week summarizing in the most comprehensive manner the needs of the city that should be given attention by the new administration. His recommendations were given in a general way, the details must be worked out later by the Mayor and Aldermen. He said that sewerage is of paramount importance and named other needed improvements. He stated also that many complaints have been made of the trouble caused by the wandering of horses and cattle from outside into the city to the great annoyance of citizens and the damage of property in the First ward, and recommended that action be taken looking to the abatement of this nuisance. The small area of the parks he also referred to.

### Watervliet Sewer Law

Watervliet, N. Y.—The Watervliet storm sewer bill became a law last week when Governor Dix affixed his signature to the act. The bill provides for the construction of a system of storm sewers through the northern part of the city, but its real purpose is to abate the nuisance caused by Dry River, which has been an eyesore to the community longer than the oldest citizen of the city can remember. The city is authorized by the bill to bond itself to the extent of \$165,000, or whatever portion of that may be necessary. The plan is to construct two basins near Weinbender's grove in Colonie and have them operate by automatic dams, which will lead into a six-foot conduit near Grotto Court. The conduit will be buried in the present course of the creek to Sixth avenue, where it will be enlarged, and after receiving another conduit that will drain the gas house creek district. It will be finally made 12 feet in diameter and flow on an easy gradient over Twenty-first street to the Hudson River. The bed of the old stream will then be filled in and reclaimed. The amount of property that will be benefited by this improvement can be realized from the statement that the river flowed through twenty city blocks and submerged five principal streets to a depth of twenty inches at least twice a year. The stream then dries up in summer and becomes a menace to public health.

### Glen Ridge Votes to Join in Trunk Sewer

Glen Ridge, N. Y.—While objecting to the proposed contract of the Passaic Valley Sewerage Commission on the point of cost to the borough and to some of the neighboring municipalities, the Glen Ridge Borough Council last week, in the interest of all concerned, passed a resolution submitted by Councilman Beard, chairman of the Sewer Committee, which will eventually mean, it is thought, the signing of a contract for the trunk sewer. The action taken was a direct breakaway from the plan of Mayor Hinck, of Montclair, for the installation of an Imhoff sewage disposal plant.

### Law Against Use of Common Drinking Cups

Chicago, Ill.—The law abolishing the use of common drinking cups in public places is now being generally observed. In railway stations, department stores, municipal and county buildings and railroad trains the public cup was generally missing from the accustomed hook. Manufacturers of paper cups and devices for supplanting the old germ carrier say that they are swamped with orders.

### Plague of Flies

Richmond, Va.—From a Virginia city comes a dismal report of conditions which remind the people of the plagues of ancient Egypt. Millions of flies, untold millions, have descended on the city and are making miserable the lives of the citizens. The State Health Department, to which an appeal for assistance has been made, prefers not to give the name of the suffering city, but its experts cite the reason for the epidemic, as disclosed by health officers, as a warning to other communities. A great deal of decaying vegetable matter was allowed to accumulate around the city, unprotected and uncovered, as a result of unusual conditions. The flies laid their eggs in this material with the result that millions of flies have hatched out.

### Would Purify River with Oil

Dallas, Tex.—The Board of City Commissioners have decided to pour oil on the Trinity River. The theory is that when the river is nicely lubricated with a good thick layer of oil the smells will slip along underneath instead of permeating the surrounding landscape. Commissioner Lee was authorized to purchase a tank of oil, and more if necessary. The oil will be applied below the viaduct, because river water is used in mixing concrete at the viaduct, and if the oil were poured over the river above that point it would interfere with this work. However, it is believed that if there is any efficacy in oil when it comes to suppressing odors this plan will prove as satisfactory as if the oil were dumped in the river higher up, because the principal sewers empty into the stream below the viaduct.

### Health Department Inspection of Garbage Cans

Galveston, Tex.—The city health department is prosecuting a campaign against uncovered and improperly covered trash and garbage receptacles, especially garbage cans. The law requires that these receptacles be covered with water-tight covers and several complaints have been filed and arrests made in cases where the owners or occupants of premises have failed to comply with the law after being served with notice.

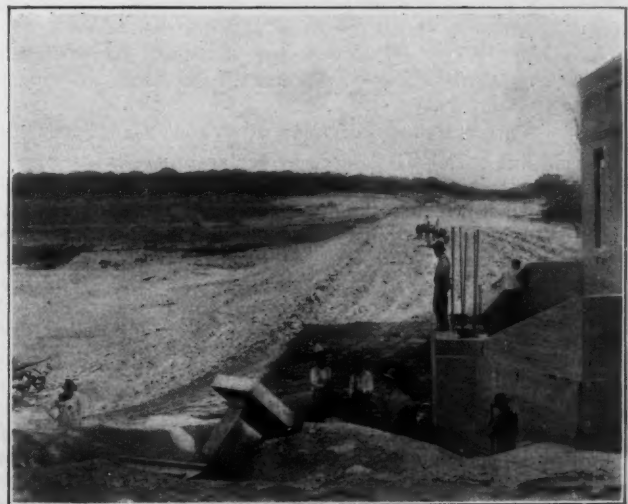
### Recommends Securing of Market Stalls

Norfolk, Va.—That food products offered for sale on the city market should be guarded against contamination by efficient screening of the market stalls, is a recommendation which Health Commissioner Schenck made to the Board of Control last week in a letter discussing the condition of the market as affecting the public health. The commissioner declares the protection of foodstuffs at the market is far from what it should be and expresses the opinion that but for financial difficulties the city should proceed to erect a new market. The Board of Controllers has not acted on the recommendation of the commissioner, but probably will take steps to have his views as to screening carried out.

## WATER SUPPLY

### Reservoir Is Near Completion

Dallas, Tex.—At a rate of about 2,000 cubic yards a day earth is being placed on White Rock dam. The top is so high that it is impossible to use steam shovels to deposit the dirt. They have been abandoned for mule teams, sixty-five in number, which are hauling the earth from the site of the reservoir and placing it on the crest of the dam. The dam, which will be 40 feet high, 275 feet broad at the base and 20 feet wide at the top, will be finished about August 1. Three steam plows are loading the dirt into wagons and 300 men are employed. The bulk of the concrete work is done. The capacity of the reservoir will be about 7,000,000,000 gallons.



Courtesy Dallas News.

EARTH WING OF WHITE ROCK DAM

### Municipal Ownership Proves Satisfactory

Bristol, Tenn.—The water question is solved in Bristol and there is an abundance of pure and wholesome water from the two Preston springs and from the original Mumpower source. Bacteriological examinations made last week of specimens of all the water show that it is absolutely pure and wholesome and the reports are a source of gratification to the water officials and to the city authorities who have been enthusiastic workers for the success of municipal ownership of the plants. Both Bristol, Tenn., and Bristol, Va., now own their water supply and they are joint owners of the Frank Preston supply, which cost about \$150,000 exclusive of the price paid for the big spring. Bristol, Va., has realized handsomely from its plant and it is almost paid for, while the Bristol, Tenn., system is doing well and proving a good financial advantage. The rates are low and municipal ownership of these plants is considered a big success.

### Waste of Water

Brainerd, Minn.—The water and light board has adopted regulations to check the waste of water. Recent pumping records showed that the city pumps had furnished 1,750,000 gallons and this even was not enough. Statistics show that the normal requirements of a town like Brainerd are 400,000 gallons daily.

### Wants Auxiliary Water Supply for Park

Dayton, O.—Park Superintendent Madden solicited the services of Chief Ramby and one of the fire department engines last week to sprinkle the lawn at Library Park. Owing to the drought and Dayton's water scarcity the park department has been ordered to be extremely sparing in the use of water for lawn sprinkling. Superintendent Madden finds that the grass is suffering for more water than can be afforded for it from the Holly water pipes. He asks the chief to assist him in getting a supply from the canal.

### Freeport Anxious to Buy Water Works Property

Freeport, Ill.—Within a year Freeport, through its Mayor and members of the City Council, must decide to take one of the three following actions with reference to the water works property: First—Buy the property, issuing water certificates in security and settlement therefor. Second—Form a holding company to take hold of the property and operate it on a 6 per cent basis for the benefit of the city, using the surplus profits for new construction, improvements and extensions and in paying off certain stated amounts of the principal annually; or, Third—Grant the company a new franchise.

### Improvements to Water Works Nearing Completion

Ogden, Utah.—The Cold Water Canyon conduit has been completed. Official tests and careful inspection of the joints throughout the length of the new conduit have been made, and everything has been pronounced satisfactory. There remains but the finishing of reservoir No. 1, now in process of concreting, to complete the extensive improvements commenced the first of the year by the water works department. When all is done the city will be provided with a 20,000,000-gallon water storage to meet all emergencies that may arise.

### Voters Favor Purchase of Water Plant

Des Moines, Ia.—Des Moines declared itself for municipal ownership of the water system at the special election held last week. The proposition carried three to one. Women favored city control of the water works almost six to one. While the vote was far from the normal cast at city elections, it was larger than expected. The fair sex slipped a surprise over everyone, for it was predicted that not more than 300 would vote, while more than twice that number sought the polls and exercised the privilege extended to them along with the men.

### Bountiful Water Works Completed

Bountiful, Utah.—The new \$40,000 water works system of Bountiful is completed. The town now has two reservoirs forty feet square and ten feet deep, and a system of mains with pipes from four to ten inches in diameter. Fire plugs are being placed over the city and when installed it is expected that the underwriters will lower premiums on account of the increased protection.

### Delay in Building Reservoirs May Cause Shortage

Portland, Ore.—Delay by contractors in building the reservoirs on Mt. Tabor within the time specified under their contracts will result in a shortage of water in many parts of the city, especially in several of the suburban districts. If the weather continues unusually warm the water supply of the business districts may also be cut short. Already the lack of water is being felt in many districts, and the situation has reached such a critical point that the Albina pumping station has been put in commission and several million gallons of water pumped from wells and forced into the mains which supply the peninsula district. Extreme care is being exercised by the management of the Water Department to stop all waste of water so that the situation will not become too serious. It is feared, however, that in certain districts where the supply in cool weather is no more than sufficient to meet the demands there will be real suffering.

The company which had the contract for building the two immense storage reservoirs on Mt. Tabor is a year behind with this work. One of the reservoirs, which should have been finished on July 1 of last year, has only recently been completed to such an extent that water could be turned into it, and the other reservoir, which should have been completed in October of last year, is far from being ready for acceptance. It is said that this reservoir will not be completed before October or November, much too late to be of use this summer. This contracting firm is under a heavy penalty for every day of delinquency in fulfilling its contract.

### City's Water Found Pure

Raleigh, N. C.—Although Raleigh people have been exposed to the usual heat this summer, they have had plenty of good water for all purposes. An examination of the city water last week disclosed the fact that the liquid was absolutely pure and free from any contamination. At no time during the warm months, it was claimed at the State Laboratory of Hygiene, has the water been anything but good, and the last month it was especially pure.

## STREET LIGHTING AND POWER

### Street Lighting and a Municipal Plant

Saginaw, Mich.—The legal opinion filed with the Board of Trade by Attorney Robert F. Holland as to the status of street lighting in Saginaw and the course that would have to be followed to erect a municipal lighting plant, should such a step be taken by the city at any time, presents valuable information. Probably the most important conclusion reached by Mr. Holland is that the contract made six years ago with the Bartlett Illuminating Company for street lighting is not binding on the city. This is based on two grounds, the first of which is that the contract was irregularly made and the second that it was vitiated by the sale of the Bartlett company to the Saginaw Power Company in violation of ordinance restrictions. The city is of course obliged to pay for whatever service is rendered, but assuming that Mr. Holland's position is correct the city may refuse to recognize the street lighting contract if it sees fit. This is important because it offers an opportunity for the city to open negotiations for a new arrangement with the company that will provide improved service at lower cost or to build a municipal plant, as it may elect.

### Hydro-Electric Power for Bristol

Bristol, Tenn.—Hydro-electric power from the Watauga River will be ready for delivery in Bristol over the new \$25,000 aluminum transmission line within the next eight weeks. The Watauga Power Company has installed its power house at the river and the finishing work on the big dam is about to be started. The big project represents the expenditure of about \$500,000 when everything is complete. The Bristol Gas and Electric Company has contracted to take the bulk of the power from the company and will pay it \$50,000 per year. The local company finds it necessary to discard modern new steam turbines installed a year and a half ago at an expense of more than \$100,000.



### Good Profits of Combined Municipal Plants

Hamilton, O.—City Auditor Grimmer, in his report for the operation of the municipal plants in Hamilton for the first six months of the present year, shows that the gas plant has an actual profit of \$8,942.87, the electric light plant has an actual profit of \$16,801.72 and the water works plant has an actual profit of \$14,345.23. The combined profits from the three municipal plants show actual profits of almost \$40,000 during the first six months of the year, the greatest shown in the history of the city of Hamilton. The balance in the city treasury July 1 is \$282,152.96. Auditor Grimmer has announced himself as a candidate for reelection.

### City is Building a Dam

Fort Dodge, Ia.—The city is building a municipal dam without waiting for a vote on the question. The structure is in the course of construction and soon will be done. The dam is not for power purposes, however. It will back the water up over the filtration galleries near the pumping station. The present low stage of the river has made it necessary. It has a head of water of over a foot. John Pray, superintendent of water works, is in charge of the construction.

## FIRE AND POLICE

### Declares War on English Sparrows

Denison, Tex.—The Council declared war on the English sparrows last week when City Attorney Decker was instructed to draw an ordinance which provides for the erection of all buildings, cornices, etc., in such manner as to not harbor the sparrows or their young. In a communication from Chief of Police Deck Wagner he asked the Council to provide some ways or means to assist him in the eradication of these pests.

### Would Reward Act Which Bars Deputy from Promotion

New York, N. Y.—More than seventeen years ago Thomas J. Ahearn, now deputy fire chief, then a chief of battalion in the New York Fire Department, crawled on his hands and knees into a burning tenement, through suffocating smoke, to rescue a child who, he had been informed, was in one of the rear rooms. He suffered frightful injuries, and his hearing was permanently impaired. Now, with Chief Croker on the retired list of the department, and an examination for a new chief in order, Chief Ahearn finds himself confronted with his act of heroism of 1894, and its results, and unable because of the defect in hearing to compete in the mental examination with his fellow deputy chiefs for the headship of the uniformed fire-fighting force. James Creelman, president of the Municipal Civil Service Commission, has made the matter the subject of a special communication to the Mayor, in which he recommends that the city do something to recognize Mr. Ahearn's heroism and partly compensate him for the loss he suffers in being shut out of the examination for chief.

### Fire Auto for Berkeley

Berkeley, Calif.—With the arrival of a new auto fire chassis by the Berkeley department a more adequate protection for the Claremont district will be installed within two weeks at station No. 3 on Emerson street. The present chemical body will be removed from the trucks and placed on the new chassis and the auto will be tried out late in the week. Numerous complaints have been made by residents of the district that the present apparatus is inadequate, as the engine from station No. 3 must make a steep grade before reaching a fire in Claremont. In several cases the horses have been too fatigued to get to the fire in time. The new auto truck will obviate this difficulty. It is equipped with a 45-horse-power engine.

### Plan Convention of City Officials

Texarkana, Ark.—Inviting the Texas Fire Rating Board, the Mayors, Chiefs of Fire Departments and other officials and editors of all cities within a radius of 300 miles of Texarkana to witness a demonstration on July 4 of Texarkana's magnificent fire equipment was the principal matter decided upon at a recent mass meeting at the Board of Trade rooms.

### Estimates Life of Motor Fire Apparatus

Charleston, S. C.—Chief of the Fire Department, Louis Behrens, has made the following estimate of the life of auto fire apparatus: The average fire apparatus will travel approximately from 250 to 300 miles in a year in cities of about 60,000 population, or nearly 6,000 miles in 20 years, while the motor apparatus, not being taken out to "exercise" twice a week, travels from 120 to 150 miles a year. Not only that, but to estimate from a 10-year average of the steamer's fire pumping, I figure out that a motor fire engine will have to pump for only about ten hours per year, therefore, judging from the mileage and endurance of the touring car which I use in responding to alarms, inspecting buildings, visiting fire stations, etc., a car yet giving excellent service, which has traveled 4,500 miles in the past year, and fully 17,000 miles in the past four years, I see no reason, as the motor apparatus is constructed along lines for practical fire service, and is built much stronger than the average car used by chiefs, why the motor apparatus should not, with no more repairing than the ordinary steam apparatus, serve effectively for ten or fifteen years. This is an estimate which I made from practical observation.

### Forbid Gasolene in Residences

Richmond, Va.—Use of gasolene in cleaning establishments situated in buildings used also for sleeping purposes will be forbidden if the Board of Fire Commissioners has its way. At a meeting last week the board ordered that an ordinance covering this situation be prepared and presented to the City Council.

### Chief Elliott Wants Auto Patrol for Augusta

Augusta, Ga.—The use of automobiles as patrol wagons was given special study by Chief G. P. Elliott, while attending the annual meeting of the police chiefs at Rochester, N. Y. Chief Elliott states that while away he gained much valuable information on modern policing. There are many improvements needed in the Augusta department and these particular things were given more attention than others by Chief Elliott. The Gamewell system of calls was looked into, as well as other systems, and there will be a representative of one of the other agencies in Augusta before many weeks to demonstrate the system he has for sale. The flash light system as well as the call system will be demonstrated. The chief visited the automobile factories and saw the machines being manufactured. He says that he has much information to lay before his commission at an early date and at the proper time he will be able to go before council and make a request which he is certain will be granted. After visiting cities where auto patrols are being used, the chief says that it makes Augusta look as if it were 40 years behind the times. The work is so much more satisfactorily executed with the auto patrols. Ground is covered faster, and with less trouble. There were chiefs present at the meeting this year from every State in the Union, also from Canada and Cuba.

### Police Signals Installed

Franklin, Pa.—Last week the Petroleum Telephone Company began putting up the police signals which it some time ago offered to councils and which were accepted by the city. They are four in number and the city is to have the use of them one year without cost, except for the necessary electric current. At the end of the year, if the system proves a good thing in the estimation of councils, a new agreement will be entered upon between the telephone company and the city.

### Warning About Lights to Automobile Owners

Galveston, Tex.—Police Chief Wegner desires to give warning to the owners of automobiles and other vehicles that the law is going to be enforced next week and that they will have until Monday to get their vehicle lights in shape. After Monday all those found operating their vehicles without lights and otherwise not complying with the law which requires that the tail lights on automobiles be so placed as to reflect their rays on the auto numbers will be arrested. The law does not require that owners of vehicles be so notified and arrests could be made and the offenders convicted, but Chief Wegner, in view of the laxity of enforcing the law recently, does not feel disposed to take snap judgment on any one, but officers have been instructed to arrest all violators of the law on and after Monday.

## GOVERNMENT AND FINANCE

### Comparative Statement for First Six Months of Year

Lynn, Mass.—Despite the fact that the department of streets and highways has expended \$18,618.53 the water department \$14,715.60 and the school department \$12,868.34 more than during the same period in 1910, according to the report issued by City Auditor Charles H. Tucker for the first six months under commission government, there are still those who are confident that at the end of the fiscal year sufficient ground will have been regained to make a financial showing that will compare favorably with those of other years. Since the issuance of the auditor's report the school department finances were given another boost, so that the expenditures are now \$13,157.54 in excess of what they were for the same period a year ago. This is due to the inclusion of the last teachers' payroll, which had not been distributed when the auditor closed his books for the month. This marked increase in the disbursements of the school department does not come as a surprise to people who have kept in touch with that branch of the municipal service. The extension of the system has made larger expenditures unavoidable. The opening of the new Breed school alone put a heavy burden upon the school board, and when the Classical High School is occupied still greater drains upon the treasury may be anticipated. The net bonded debt of the city on June 1, 1911, was \$3,286,947.64. On June 1, 1910, it was \$3,227,763.26. The amount available for appropriation from the tax levy, exclusive of interest and sinking funds, this year, was \$859,681.34, as compared with \$826,436.93. Consequently the unexpended balance in revenue receipts, appropriations and balances this year is \$559,418.57, while on June 1, 1910, it was only \$500,977.54.

### City License Bureau Contemplated

Tacoma, Wash.—A rearrangement of the city's method of issuing licenses in the creation of a bureau of licenses is contemplated by Commissioner F. H. Pettit, of the Department of Public Safety. Mr. Pettit said a license bureau would fit in admirably with a department of weights and measures. The work of the two departments is quite similar, and could be operated economically. It is the intention of the commissioner to have all licenses paid the first of the year and have all licenses payable annually and not semi-annually as is the case with some. This will expedite matters very much. A weights and measures department is very much needed, and it is my intention to suggest to Mayor Seymour that the two departments be combined under one head. When inspection of scales or measures is made at any time it would be an easy matter to examine the license of the place. No additional outlay of money would be required in combining the departments, either.

### City \$40,000 Short

Norwood, O.—The finance committee of the Norwood council met last week with the Mayor, Auditor and City Clerk and went over the annual budget. They found that the city government will be about \$40,000 short of expenditures under the new 1 per cent. tax limit law. Ways and means of making up this deficit will be thrashed out and efforts made to meet all expenses under the circumstances.

### Plan to Increase Dallas Bond Limit

Dallas, Tex.—On receipt of a letter from Governor Colquitt to Mayor Holland, to the effect that his efforts would be to assist Dallas in the desired adoption by the extra session of the Legislature of certain charter amendments, steps have been taken looking to formal presentation of the amendments to the Legislature. Formal advertisement, as required by the city charter, will be inserted at once giving notice of the intention. This advertisement will state that it is desired to so amend the charter as to provide a bonded debt limit of \$8,000,000 instead of the present \$5,000,000; to permit the issuance of \$500,000 bonds, the proceeds to be used for park improvements and purchases, and to change the present charter so that bonds for street improvement purposes may be issued to run less than forty years if so desired. As the charter now reads, this class of bonds must be issued to run a full forty years. A twenty-fourty serials is considered the best class of bond to issue.

### Council Adopts Own Plan for a Charter Revision

Atlanta, Ga.—In practically the same form as originally submitted by Aldermen Candler, Kelley and Warren, the plan of revising the city charter was adopted by the General Council at the special session called to consider it; but there was a debate of more than two hours before it finally got through. The vote was 15 for and 8 against. The plan in general provides for reducing the councilmen from twenty to ten members; the aldermen from ten to five members, or one from each to five aldermanic districts to be fixed according to population, and reducing the boards from ten to five members, one from each aldermanic district. Most important and significant of the amendments which were adopted was to have the board members elected by council instead of appointed by the mayor. The plan originally provided appointment. Alderman Candler proposed this change and led the argument in favor of it. He sought to make it appear that as between the right to appoint board members but not to be a member himself, or to be a member of each board and let council elect, the present Mayor would prefer the latter.

### Recall Petition Filed

McAlester, Okla.—A petition has been filed with the City Clerk, signed by over 400 voters, asking for an election for the recall of Pete Hanraty, elected last October as the first Mayor of McAlester under the commission form of government. A like petition was filed in April, but the other commissioners refused to call the election. Judge Cole of the District Court refused a writ of mandamus to compel them to call the election and this case has gone to the Supreme Court. The citizens got up a second petition and the commissioners have announced they would call the election. Mayor Hanraty was a member of the constitutional convention and was on a committee fighting for the recall clause. He was former president of the Coal Miners' Union for this district, and elected chief mine inspector at the Statehood election.

### Card Index System for City Assessment

Scranton, Pa.—City assessment methods will be changed within the next few weeks when the card index system is completed by the board of assessors. The old blotter system will be abolished and will be replaced by cards for every property owner in the city. City Assessors have been at work on the system for two months past, and now the cards are ready for filing. Heretofore assessments have been made on the book known as the blotter, this being done by streets and blocks. The assessments have then been copied in the assessment books in alphabetical order. The card system consists of putting each assessment on a card and then copying from the cards to the book. The cards will be changed at each triennial assessment, changes being made also as property is improved. The work of installing the system has required constant attention on the part of the members of the board.

### Federal Government Permit Required for Council Sessions

Atlanta, Ga.—For the first time in municipal history in America it is going to require the passage of a bill by the Congress of the United States to permit a city council to hold its ordinary sessions. Atlanta has recently purchased the old customs house for a city hall, but cannot hold meetings there because the site is still under Federal jurisdiction and business transacted at the sessions held there would not be legal. A special bill will have to remove the jurisdiction.

### Estimates 20 per cent. in Excess of Amount Allowed

Cincinnati, Ohio.—With the exception of the park and the street lighting estimates all departments have furnished Mayor Schwab with the amount of the appropriation they seek for next year. These estimates, with the two mentioned departments still out, amount now to over 20 per cent. more than the total appropriation for the current year. The Smith law has been interpreted by City Solicitor Ballard as limiting the amount to be expended in 1912 to the appropriation for the present year. Mayor Schwab, however, despite the increased valuations and added territory, expects that the amount of taxes will show a material decrease under the 1 per cent. limit provision. He said the situation to be faced in the city finances is critical.



## STREET CLEANING AND REFUSE DISPOSAL

### River Water for Street Sprinkling

Dallas, Tex.—Trinity River water is being used for sprinkling purposes on the brick-paved streets in the business section of the city. This water is being used only after the disinfectant, prescribed by the city health officer, as both disinfectant and deodorant has been applied to each tank of water. Mr. Lee has received many congratulations from business men, who supposed from the effects that the river water was not any longer used. This water is used on the brick streets because both the city health officer and the president of the Board of Health have assured the city officials that the effect of the hot sun upon the hard brick or vitrified block pavement is that of a germicide and that hardly a germ could be expected to survive the ordeal. The water is not used on the creosoted wood block pavement for the good and sufficient reason that the hot sun causes an exuding of the tarry creosote, which is a very effectual reducer of dust and requires no water.

### Clean Street Campaign On

Elizabeth, N. J.—Planning a crusade for civic betterment in keeping the streets of Elizabeth free of rubbish and garbage, Mayor Stein and Chief of Police Tenney addressed all the patrolmen of the city force recently in the ward room of police headquarters on the enforcement of the city ordinances.

### Rids City of Empty Tin Cans

Hill City, Kan.—The boys and girls have recently cashed in for ridding the city of more than 63,000 tin cans and other pieces of scraps. City Marshal Yerkes has been busy this spring getting rid of the rubbish. More than thirty-one large loads have been hauled away, and cleaner conditions prevail. He hit upon the novel scheme of paying the boys and girls of the city five cents for every hundred pieces brought to the wagons from the alleys of the town. A draw runs through the center of the city and has long been known as the "trail of the tin can." Although the name may still stick the cans have disappeared, and it is no longer used as a place to haul junk.

### City Will Fight Dust by Oiling the Streets

Brookhaven, Miss.—At their meeting last week the Mayor and Board of Aldermen gave an order for oil with which to oil the streets in an attempt to combat the dust evil. Streets in the business section will receive attention first, after which a plan will be adopted whereby residence streets will be oiled if the property owners will co-operate.

### Garbage to Be Used as Fuel

Quincy, Ill.—While the health board is working to evolve some effective and economical plan for disposing of the city's garbage and waste, information concerning the experiences of other cities is being sought. City officials are watching the system in Cleveland, O., where the plan of reduction and the sale of by-products of the city's waste is being tried. Some city authorities now are considering converting the street rubbish as a mass into combustible briquets for heating boilers. They have found that at Southwark, London, and at St. Ouen, France, street rubbish is transformed into a marketable product. At Southwark all the powder thus made, with the addition of combustible substances, is formed into a cheap fuel. Besides a financial profit, it is reasoned that the danger in times of epidemic will be greatly lessened by such transformation of street refuse.

### Garbage Collectors Not Permitted to Accept "Tips"

Omaha, Neb.—An ordinance making it unlawful for any driver of a garbage wagon to solicit or accept pay for his services or to accept "tips" from householders of the city is being drawn by City Attorney John A. Rine. A fine of from \$10 to \$15 is the penalty named for violation of the ordinance. Complaints that drivers of wagons operating under the new plan of municipal collection have been preying on housewives who are not familiar with the free collection plan have been filed with the Health Department. Various schemes have been resorted to, among them one where the driver says he is not required to collect refuse and charges for this service. No provisions exist in the city ordinance to meet this condition.

## RAPID TRANSIT

### Waycross to Have Street Railway

Waycross, Ga.—Waycross will have a system of street railway with extensions to nearby communities within a year, if the chapter applied for is granted to the citizens backing the proposition. To begin, the company it is proposed to have at least \$500,000 in stock. This is the result of the great demand for stock in the company locally, although a good share is to go to outsiders. The company will have to get busy within sixty days in order to comply with the franchise granted. Blackshear and Waresboro are the first places near Waycross that will be reached by the suburban lines. Hebardville, Deenwood, Winona Park and other sections of Waycross will be pierced by the city lines. To overcome the railroad crossing problem, several overhead crossings will be erected, making a portion of the lines elevated. The backers of the system have ample financial support to carry out all projects of the company, in addition to the outside assistance. The construction of the line will relieve conditions considerably in Waycross, as the question of transportation has been one of the greatest before the city for years.

### No Opposition by Public at Preliminary Hearing for Franchise

Chattanooga, Tenn.—The Municipal commissioners held a conference with Mayor Thompson last week when the ordinance granting a franchise to the Chattanooga Railway & Light Company for a single track line on Highland Park avenue and Vance street was discussed. No attempt was made to hold the meeting behind closed doors, as has been charged, and the meeting was thrown open to the public. The public, however, failed to attend, and no one appeared before the conference, either for or against the ordinance. The entire membership of the board was present at the conference. The ordinance was thoroughly discussed, but no definite action was taken. At the next meeting of the board the ordinance will doubtless be passed on its second reading and then be advertised for five days, as is required by the charter. The property owners along the streets affected have petitioned the board to grant the franchise, and as no opposition so far has asserted itself, it is very likely that the franchise will be granted. For a long time before the advent of the Board of Commissioners the railway company endeavored to have this same ordinance passed by the old city council. An ordinance asking for the franchise was, however, pigeonholed, and it was never brought up after the night it was first introduced.

### Municipal Ownership Measure Completed

Detroit, Mich.—With several amendments intended to safeguard it, Corporation Counsel Hally has completed the new municipal ownership bill, which will be submitted to the voters of the city at an election to be held some time after August 1. The matter of choosing the street railway commissioners, five in number, will be left to the council, Mr. Hally submitting two sections for their approval, one providing for the appointment of the officers by the Mayor, the other stipulating that they shall be selected at a special or general election for two-year terms. A new section providing that the commissioners shall give bond is also included in the bill, as are two others making it compulsory for the council and commissioners to submit to the people the proposition of issuing bonds for the purchase of the street railway system and also the purchase price agreed on between the city and company. The bill will be taken up by the council committee on charter and city legislation at once.

### Electric Line Buys Oakland Property

Oakland, Cal.—The Oakland and Antioch Electric Railway, which will operate in Contra Costa County and Oakland, has purchased \$65,000 worth of property in Oakland and is negotiating for additional holdings for \$35,000. This property will be used as a terminal station, and near this point switching yards will be constructed. It has been announced that this will be the diverting point for traffic from all parts of the county; also the transfer point to the Key Route to San Francisco.

## MISCELLANEOUS

### Submerged Land Deeded to City for Public Park

Racine, Wis.—The State Legislature has passed the bill giving the city of Racine title to the submerged land off the lake shore between Third and Seventh streets. The area originally was above water, but the waves washed away the sandy plot and the municipality thereby became temporarily loser of several acres of land. The legislative bill, which Assemblyman Bell fathered and succeeded in getting passed, was one of the first things advocated by Mayor Goodland upon taking office. It is proposed to make a lake front park on the spot after it is filled in. Supposition is that the action of the waves, which washed away the property, will ultimately restore it again as soon as the arrow head breakwater, now in course of construction, is completed, as this is expected to change the current of the lake so it will fill in again what it has stolen in years gone by.

### Work on New Dock Rapidly Progressing

Albany, N. Y.—The work of constructing the new recreation pier at the foot of State street, Albany, began June 19. Thus far this summer the contractor has had but two days in which the water was low enough to permit the work to be done. The piles on which the concrete sea wall rests are nearly all driven on all sides of the pier, and this will be followed by driving the sheet piles. These are constructed of three heavy planks fastened together and the piles provided with a tongue and groove to make them watertight. They are driven twenty-four feet below low water level and spiked to the three rows of piles by horizontal bars, forming a solid fence to prevent the washing



Courtesy Knickerbocker Press

SITE OF ALBANY'S RECREATION PIER

out of the foundation of the concrete walls. A compressed air machine drives the immense nails under water through the planks and into the piles, a thickness of a foot of oak, at the rate of less than one a minute. There are 2,000 feet of concrete wall to be constructed entirely around the pier, laid in the three rows of piles. But 160 feet in four sections of forty feet each have been constructed. The walls are thirteen feet high, six feet wide at the bottom and two and a half at the top, which will be ornamented with stone coping. The concrete mixing plant is the most complete of any seen in this section, the stone and cement being carried into it automatically and dumped into cars, which are run on a track to the section of wall to be constructed. The contractor expects to have the pier completed by fall if work is not stopped by high water.

### City Seeks Information About Parks

Chattanooga, Tenn.—Mayor Thompson received an inquiry from Birmingham, Ala., about the way Chattanooga operates its system of parks. The communication stated that a board of park commissioners had been recently appointed in that city, and asked for data concerning the operation of the local parks. The inquiry was turned over to the department under charge of Commissioner Warner, which includes parks, and the information was furnished the Birmingham authorities.

### Billboard Men Seek Agreement with City

Tacoma, Wash.—The attempt of billboard men to obtain a "working agreement" with the Municipal Commission pending a decision from the Supreme Court on a test case of the city's "two cents" billboard ordinance has not yet been successful. The city's ordinance taxing billboard men two cents a square foot is too stringent for billboard men to do business they say. They want to pay the \$50 a year license and would promise to keep the boards out of the residence sections of the city and other places where found objectionable. They wanted the "two cents" ordinance repealed and another one adopted, fixing a larger yearly tax or some other method of regulation. The commission decided to postpone the matter.

### Park Property Grows in Value

Dallas, Tex.—The annual report filed by the Park Board with the Board of City Commissioners last week shows a grand total of all property owned by the Park Board of \$1,602,297.50. The report shows a balance on hand May 1 of \$10,805.23. The receipts for the year were \$74,377.11, of which \$70,699.80 were ad valorem taxes. The expenditures for maintenance were \$35,110.10, and for improvements \$28,428.32. The report says: "The city now owns eight park grounds, five plazas and two esplanades. Six of the parks are yet without playground equipment, while two others are used for playgrounds. The Trinity Play Park is a pronounced success in its purpose. Last year's patronage, according to Playground Supervisor Staples' report, was over 47,000. The other playground is used by the Kindergarten Association and is very small in size. The large patronage clearly shows a demand for more places of this character, and this matter will receive full attention of the board in the immediate future. Some of the larger parks are nearing completion, and in some of them will be installed playground equipment. The expense of maintaining the parks is increasing, while permanent improvements will be made hereafter in newer parks. Central Square will be finished shortly and will show a modern small park or plaza, according to Mr. Kessler's design. Our largest asset, however, is the Fair Park, and it is with pride we refer to accomplishments of this most important park and State Fair exhibition grounds. The city, by bond issue and agreement, took over these grounds in June, 1904, the total cost being \$125,000.

### Park Board to Decide About Free Plunge for Boys

Salt Lake City, Utah.—A petition to the City Council from the Playgrounds Association asking that the Council and Mayor secure permission from the management of Warm Springs for boys to swim free of charge every Saturday morning between 8 and 12 o'clock, and which was referred to the Committee on Public Grounds and Waterways, was last night referred to the Board of Park Commissioners for action. It is the desire of the Playgrounds Association to provide a place where the younger boys may have swimming facilities without cost on one morning of each week. The petition sets forth that the boys shall provide their own towels or purchase the use of them from the management of the springs at the rate of one cent each. The Council Committee decided that the matter was one for the Park Commission to handle, rather than the Council and recommended that it be so referred.

### Information About Parks

Marion, Ind.—City Clerk Heck has received from E. J. Hancock, of Indianapolis, a letter asking full information regarding the different parks of the city. Mr. Hancock is secretary of the Indiana Forestry Association, the purpose of which is to protect existing timber and secure planting of new trees and the park movement is one of the methods by which the desired results are obtained. Mr. Heck sent the desired information together with a few cuts of the parks.

### Mayor Pleased with Park Board

Racine, Wis.—Mayor Goodland is much pleased with the improvement of Monument Square, which, he says, cost only 75 cents per square yard, as compared with \$1.20 paid for similar work in Chicago.



## LEGAL NEWS

**A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities****Street Improvement Ordinances—Validity**

*City of Lincoln vs. Harts et al.*—An ordinance for a street improvement which does not require a city to pave a strip occupied by a street railway company unless the company fails to pave is invalid, as providing for an uncertain and indefinite improvement.—Supreme Court of Illinois, 95 N. E. R., 201.

**Ordering Sidewalk Construction.**

*Brady vs. City of Detroit et al.*—Under Revised Ordinances 1895, providing that the board of public works shall notify the owner of a lot where there is no sidewalk and where in their judgment one is necessary, to build one upon notice, or the owner of any lot where the sidewalk is out of repair or dangerous, to repair, or rebuild it if in the judgment of the board, it should be rebuilt, the power to compel the rebuilding or repairing of sidewalks could only be exercised when, in the judgment of the board of public works, such rebuilding or repairing was necessary, and a notice to an owner to construct a sidewalk prepared by an inspector of the board and never submitted to the board, but stamped by the inspector with the president's name by using a rubber stamp, is insufficient as a basis for an assessment for building the walk.—Supreme Court of Michigan, 131 N. W. R., 569.

**Injuries by Fireworks—Liability**

*Kerr vs. Inhabitants of Brookline.*—A municipality is not liable for injuries by fireworks set off under statutory authority on a public playground, as it is a public work, conducted solely in the public interest and for the general benefit. The setting off of fireworks by a municipality, which holds ground for the public as a playground, solely for the public use, under Revised Laws, is not a nuisance, as the town is not the owner of the playground in the ordinary sense; and, furthermore, the setting off of fireworks on a single occasion does not create any permanent or continuing condition of real estate, and ordinary negligence is not a nuisance. Setting off a rocket from a highway, or across a highway, is not a defect or want of repair in the way.—Supreme Judicial Court of Massachusetts, 94 N. E. R., 257.

**Building Regulations—Retroactive Operation**

*City of New York vs. Foster.*—New York City Building Code, Sec. 97, requires "all dumb-waiter shafts," except such as do not extend more than three stories above the basement in dwelling houses, to be inclosed in brick walls or burnt clay blocks in iron frames, or such other fireproof material as may be approved by the Commissioner of Buildings, and section 1 contemplates that the following sections shall be applicable to "buildings or structures erected or to be erected," unless a different intention is expressed therein. Held, that section 97 was applicable to buildings erected before its enactment.—Supreme Court of New York, 129 N. Y. S., 620.

**Condemnation Proceedings—Statutory Provisions**

*Fishblatt vs. Atlantic City et al.*—On a petition by Atlantic City, filed in March, 1909, to have commissioners appointed to appraise damages in the taking of land for a public park, the proceedings are controlled by the act of 1902, which act was adopted by Atlantic City in 1902. A section of that act provides that the commissioners appointed to make the appraisal, after having first taken and subscribed an oath or affirmation, shall, in such manner as shall be directed by the justice who made the appointment of the commissioners, give at least six days' notice to the persons interested in the property of the time and place where the commissioners shall hear any person in interest. Before the commissioners qualified by taking an oath, a notice was served upon an owner of the land to be condemned, signed Atlantic City, Petitioner, by H. W., City Solicitor. Held, that this notice of the hearing before the commissioners was defective.—Supreme Court of New Jersey, 79 A. R., 887.

**Ice on Sidewalk—Personal Injuries**

*Barr vs. City of Fairfax.*—Where the water from certain leaders on a building overflowed upon the sidewalk and froze at night and melted in the day, and made an icy spot which was there for three or four days, the city officers must have known that it would reform later in the day even if they did remove it, so it was their duty to remove the cause which produced the condition of unsafety or have it removed, and hence an instruction in an action by one injured through a fall on the ice, which charged that the municipality was not liable if shortly before the plaintiff's injury the walk had been cleaned or scraped, was improper, in that it would have relieved the city of liability if they removed the ice only once a day, and an addition by the trial court which confined the nonliability to injuries from ice which formed without the knowledge of the officers of the city was proper.—Kansas City Court of Appeals, Missouri, 137 S. W. R., 631.

**Improvement Ordinance—Validity**

*City of Geneseo vs. Brown.*—An ordinance provided for the construction of catch-basins and for their connection to public sewers; but the length and depth of such drains were not mentioned, and no reference was made to the sewers to be connected. One item of the engineer's estimate was "90 lineal feet 12-in. sewer tile drain, at \$0.50 per lineal foot, \$45." Held, that the ordinance was invalid.—Supreme Court of Illinois, 95 N. E. R., 172.

**Defective Crosswalk—Personal Injuries**

*Pearce vs. Kansas City.*—In an action for injuries to a pedestrian from falling into a hole at the junction of a sidewalk and an alley, plaintiff testified that she stepped off the walk into the hole at night and was injured. Another testified that plaintiff caught her heel on the edge of the sidewalk where it joined the alley and went down on her knee. Held, that the court did not err in refusing to charge that, if plaintiff's fall was caused by catching her foot on the edge of the sidewalk, she could not recover, since in that event the catching of her heel was but a contributing cause of the accident, which would not have resulted in the injury but for defendant's negligence in permitting the hole into which she fell to exist. In an action for injuries to a person in old age or late middle life by falling on a defective sidewalk and breaking the fibula, wholly or partially disabling her permanently, a verdict awarding her \$2,000 was not excessive.—Kansas City Court of Appeals, Missouri, 137 S. W. R., 629.

**Maintenance of Sidewalks—Gross Negligence**

*Robertson et ux. vs. Town of Jennings.*—It is gross negligence for the authorities of a municipal corporation to allow a sidewalk composed of wooden stringers, laid upon the ground in rows parallel with the line of the street, with planks nailed upon them, crosswise, to fall into such a condition that some of the planks are missing, leaving holes in their stead, others are loosened from the stringers, so that they are liable to tilt and shift their positions, and others are so rotten that they break when trodden upon; and it is not such contributory negligence as will preclude the recovery of damages for injury sustained by reason of such condition where it appears that the person charged with such contributory negligence, seeing a hole left by a missing plank, and seeing, upon the farther side of the hole, a plank, apparently sound, steps across the hole onto the plank, and is precipitated to the ground by the breaking of the plank, which proves to be rotten.—Supreme Court of Louisiana, 55 S. R., 375.

**Defect in Street—Contributory Negligence**

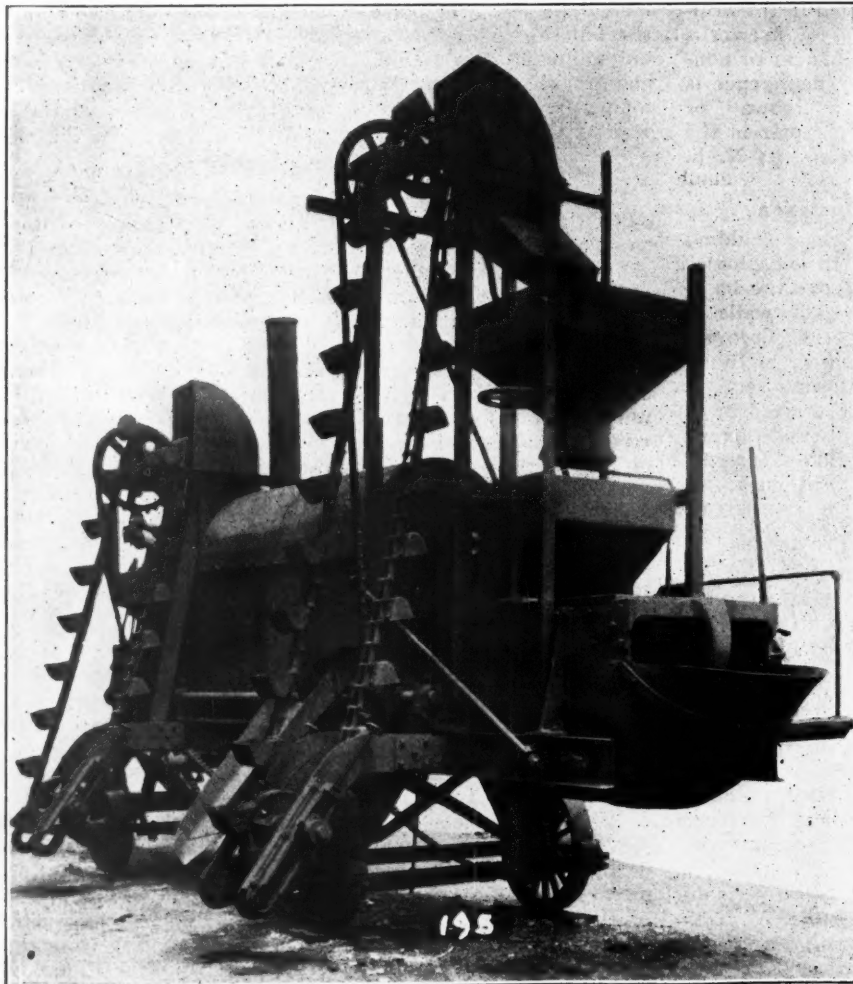
*O'Neil vs. City of Chelsea.*—Where the plaintiff has knowledge that a trench is being dug towards a street car track, and is likely to cross under it, a failure to speculate as to possible dangers is not contributory negligence, where no indication of any danger appears. Where a city is digging a trench along a public way, not closed to travel by vote of the common council, with due notice thereof, the defendant's duty is to use reasonable care and diligence to protect travelers from danger. If a city, while excavating a trench under a street car track, relies upon the employees of the street car company to warn and guard the public from danger, it is liable for any injuries resulting from the company's failure to do so.—Supreme Judicial Court of Massachusetts, 94 N. E. R., 297.

## MUNICIPAL APPLIANCES

### New Portable Plant for Road Builders

To meet the requirements of bituminous macadam road builders for an economical, compact, portable plant, the Iroquois Iron Works has designed a self-propelled asphalt-concrete mixing machine, weighing only 10 tons, which has a capacity of 800 sq. yds. of 3-inch material per day of 10 hours. The manufacturers believe that this plant, while available for work carried on on a large scale, will solve the problem of profit making on contracts which do not justify very costly outfits. The wheel base of the machine is only 12½ feet and it can be shipped on a railroad car.

The engine and boiler of the mixer are the same as those of the Iroquois 8-ton roller. Link belt and bucket elevators are provided for both hot and cold material. The dryer is of the revolving drum type with a screen at the delivery end. The steam-jacketed mixing trough, measuring box, and asphalt measuring bucket are of the same width, and so arranged that the stone and heated asphalt are delivered together in a broad stream at the rear of the plant, and there forced by the revolving blades through a trough sufficiently high to permit of easy loading to distributing carts and barrows. The engine, boiler, dryer and mixer are all on one level, the platform being formed of 9-inch 15-pound channel. The first two of these machines to be manufactured have just been sold to Troy, N. Y., and Baltimore contractors.



NEW IROQUOIS PORTABLE ASPHALT MIXING PLANT, BUILT SPECIALLY FOR ROAD WORK

### Police Patrol Box Handcuffs

W. F. Robinson, 72 Broad street, Boston, Mass., has placed on the market an improvement in police patrol boxes. Its purpose is to provide a means fastened permanently to the patrol box, by which a prisoner may be secured to the box by the patrolman until the patrol wagon with its police arrives to take the prisoner to the station. The device is called Valentine's automatic police patrol box handcuffs.

The driver of the wagon is the only officer who holds the key to unlock the handcuffs. Fig. 1 illustrates a patrol box in perspective, with the door partly broken away and a handcuff attached to the interior by means of a chain and weight. Fig. 2 is a detailed section, partly broken away, taken on line 22 of Fig. 1, looking toward the left in said figure. Like numerals refer to like parts throughout the second views of the drawings. In the drawings Fig. 2 is a patrol box supported upon a column, 5, and 6 is the door of the patrol box; 7 7 are chains. To one end of each of said chains is attached a handcuff, 8, and to the other end of each of said chains is attached a weight, 9. Each of the chains 7 passes over the rear side of a flanged roll, 10. The rolls 10, 10, 10, are rotably supported upon a rod, 11, fastened at its opposite ends to the patrol box, 4. Hooks 13, 13 are provided in the interior of the box, upon which the handcuffs 8, 8 are supported when the cuffs are not in use. In Fig. 1 one of the handcuffs is shown

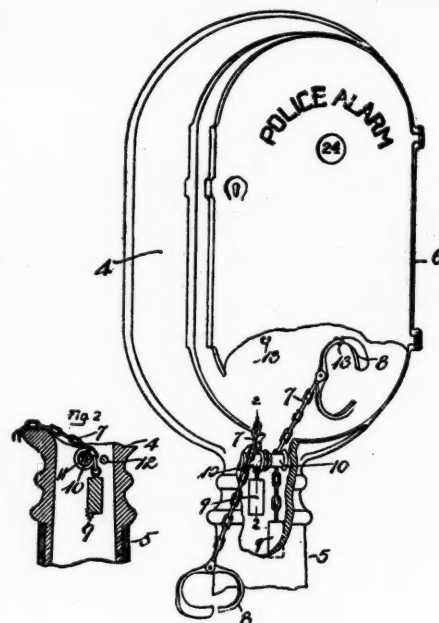


Fig. 1

HANDCUFF ATTACHMENT FOR PATROL BOX

as supported upon its hook 13, and the other is shown as withdrawn from the box in readiness to be clasped upon the wrist of the prisoner. When one of the handcuffs is applied to a prisoner it causes the weight 9, attached to the chain 7 to be drawn upwardly until it is substantially in the position shown in Fig. 2. Any further attempt to withdraw the chain from the box will result in the weight 9 coming into contact with the roll 10 and with the rod 12, which will prevent the chain and the weight from being entirely withdrawn. This invention having two handcuffs, two prisoners may be secured. The advantages of this system are manifold, as any police official or patrolman cannot fail but to appreciate as it is well known that the majority of serious troubles take place at the patrol box, as a prisoner takes advantage of the officer as he is telephoning, and also by the friends of a prisoner taking a like opportunity to aid in the security of his release. This invention is simple in its construction, containing no complicated parts to get out of order, and it may be easily and readily installed in any police patrol box at a nominal cost. From a humane standpoint this system should be adopted in all cities.

### Water Meters

In the article on water meters exhibited at the American Waterworks Convention in the MUNICIPAL JOURNAL, June 14, the printer's imp, a very busy mythological gentleman, taking advantage of a similarity in the general outlines of the King and Keystone meters, and some remissness on the part of the staff, transposed the captions under the cuts. In order to correct as far as possible any confusion that might arise from the error we repeat the cuts and the descriptions.

The Pittsburg Meter Company, East Pittsburg, Pa., exhibited the Keystone disc meter. The illustration shows the D. C. type, which is now made with all bronze outer cases. Formerly these meters were made with galvanized iron upper cases. In other respects the meters are the same and all parts interchangeable. The intermediate gear construction is considered by this company as the most vital part of the meter. In the Keystone the shafts are





KEYSTONE DISC METER

held in accurately made journals, while the weight of each element is carried by the sharp pivot resting on the step surface, with only a point contact. The first pinion and wheel of the train have a larger pitch and also a greater face than the second and third wheels, in order to take up the increased wear due to the higher speed at which the first wheel operates. The measuring chamber is supported in the lower case by lugs, and is held in position, without the aid of screws or bolts, by the upper case bearing on a shoulder cut in these lugs. When the upper section is removed, the measuring chamber can be immediately taken out without any annoyance of removing screws, etc.

The Union Water Meter Company, Worcester, Mass., exhibited their King disc meter. In this meter all internal moving parts are assembled in a single working unit, readily accessible for inspection without removing the meter from the service pipe. The bearings of moving parts are of generous proportions and are protected from the entrance of abrasive material. The measuring chamber is large. Inlet and outlet spuds are low, thus allowing water to drain from the meter to a point where damage from freezing is impossible. The spuds being a part of the lower section of the casing it is not necessary to disturb pipe connections in opening the meter for examination. The manufacturers of this meter contend that the breaking of meter discs is generally caused by unequal pressures within the chamber resulting from improper proportioning of ports. They argue that the disc of the King, unhampered by the added weight of reinforcements, has the lightness and activity necessary to respond to small flows of water, while under large draughts it is not subject to damaging stresses set up by its own action. The disc control is effected by a single hard-rubber roll mounted on the disc

spindle, coating with a stationary cone. The gear train, composed of accurate, machine-cut hard-rubber gears and bronze pinions, presents antifriction and long-wearing qualities. As hard rubber is of nearly the same specific gravity as water the weight of the gears is inappreciable.

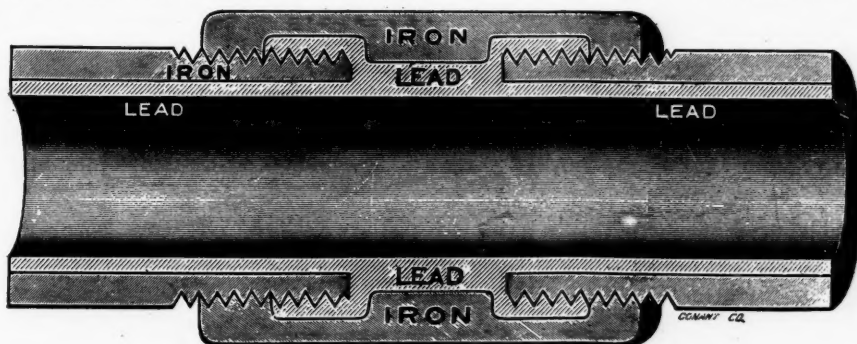
#### Portable Concrete Plant

An interesting portable concrete plant was recently used by the Great Lakes Dredge & Dock Company, Chicago, in constructing foundation work. It was built on a platform 20 feet square mounted on rollers. On the platform a 75 h.p. horizontal boiler was mounted which furnished steam for the operation of the Ransome mixer and Lidgerwood hoist. A 1-yard mixer was placed near the rear of the platform and a hopper bin erected above it, which has a capacity of 10 cu. yds. of stone and 5 cu. yds. of sand. The bins were filled from cars on a parallel track, by means of a locomotive crane and clamshell bucket. The material from the storage bins is dumped into a 1-yard batch hopper. From the mixer the concrete is delivered to a Ransome tower bucket which is raised 75 feet and delivered into the chute. The chute consists of a 12-inch galvanized pipe, supported by two 80-foot booms. From the ends of the booms lines run to equidistant points on the chute thus supporting it uniformly and keeping it in a straight line. The booms are swung horizontally over the work by hand. The lower 60 feet of pipe is made in movable lengths of 8 feet. The plant itself is pulled along on its rollers by attaching a line to a deadman and taking it on the hoist.

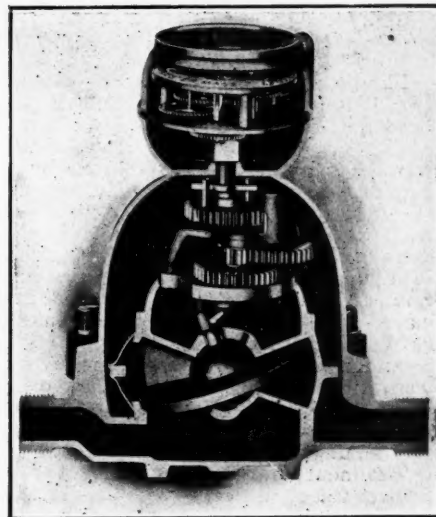
#### Lead Lined Iron Pipe

The Lead Lined Iron Pipe Company, Wakefield, Mass., manufacture iron pipe and specials lined with either lead or tin. The illustrations show a union lined with lead. If the pipe were lined with tin that metal would simply take the place of the lead, as shown in the cut. The process of manufacture is as follows: A length of iron pipe is taken and thoroughly pickled and given a bath of tin, which solders it inside and outside, making it, even before the introduction of the lining, a positive pipe that can have no pin holes in it, as is often the case in iron pipe, either black or galvanized, and being weak at the weld. Whereas this pipe solders the weld from end to end and after it is lined it is practically extra heavy. The lining of lead or tin is poured into the iron pipe in a molten state around a mandrel and the lining is thoroughly fused onto the iron pipe.

Lead lined iron pipe is recommended for use for service pipes generally, for water supply for homes and in general wherever the water is corrosive in its



COUPLING SHOWING TYPICAL CONSTRUCTION OF LEAD-LINED FITTINGS

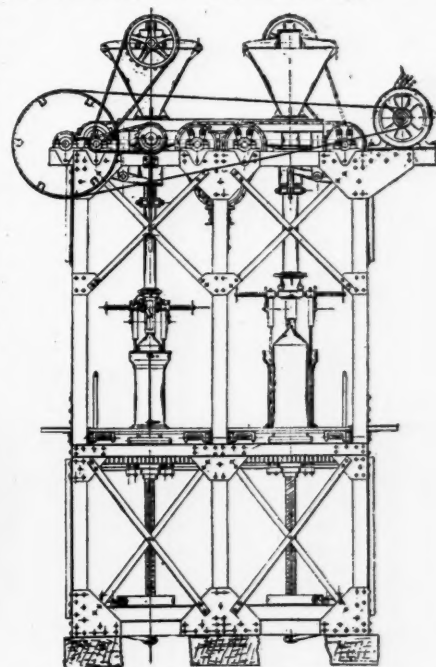


KING DISC METER

nature and a pipe having greater strength than lead is required.

#### Cement Pipe Machine

The Atlas Cement Pipe & Machinery Co., Boise, Ida., have placed on the market a cement pipe machine which is claimed to be simpler to operate than most machines of its class and not to require an expert to operate it. No wood is used in construction. Steel channels and angles are securely riveted together into a solid frame on which is mounted the machinery. The special feature of the machine is that it makes the pipe bell end down, the rings being fastened to the table and never moved. Every movement of the machine, including the feed, is under control of the operator by means of levers. Concrete is tamped into the mold by means of four mechanically operated rammers, the speed of which may be varied. Both core and jacket are fixed firmly in position during the tamping operation. The core, however, may be rotated to give a smooth inside finish without blistering. Finally the core is pulled from beneath instead of from above, as is the usual way.



ATLAS-CEMENT PIPE MACHINE—BELL-END DOWN

## NEWS OF THE SOCIETIES

**Illinois Mayors' Association**—About two hundred members and guests attended the annual convention of the association, Peoria, Ill., June 28-29. They were met at the railroad stations by a committee of municipal officers and escorted to the City Council chamber, where they were welcomed by Mayor Woodruff. Mayor Joseph E. Padden of Evanston, president of the association, responded. Mayor Woodruff declared that city officers, while ranked as politicians, really stood close to the people and provided for their every want and it was their duty to not only keep abreast of the times but to prepare the way for the generations that are coming. Politics is the science of government and he would like to be considered a politician in its best sense, in that he was an officer who was working for the public good and this feeling would be shared by every public officer present.

In his annual address President Padden said that the chief executive of a city has a tremendous responsibility imposed upon him. Laws are not self-executing and in the absence of proper and intelligent administration are of little value. There appears to be a tendency in later years to give too much time and energy to the passage of new and experimental laws, rather than in making an earnest effort toward getting the best out of laws already in force. The tendency to pass ordinance after ordinance on almost every conceivable subject exists in many cities, and unless the necessity is great this tendency should be resisted. It is not fair to the citizen. He has the right to know what is expected of him, and when changes are made so rapidly that he can hardly find time to read them, the burden is too great. In the absence of an emergency he should be allowed to absorb the laws in force before radical changes are imposed upon him. Stagnation, of course, should not be tolerated, but the other extreme is just as harmful.

Some enabling legislation relating to cities and villages should be adopted in Illinois without doubt. It is apparent that they should be given the power to avoid the expense of a primary election for city officers where the sentiment of the city or village is against the injection of partisan politics into local affairs. They should also have more power to regulate, upon fair and equitable terms, the price of gas, electricity, water and other public necessities which are furnished to the community. They should have additional power to impose such regulations as are necessary for the protection of the health of the community, and also in the regulation of automobiles and auto trucks, and should have the power to examine and license the drivers of all these machines and to take away a license where recklessness is shown.

At the conclusion of the president's annual address the reports of officers were received and after adjournment the visitors were given an automobile ride through the city. In the evening there was a smoker in the assembly room at the City Hall at which brief but expressive talks were made by Mayor Woodruff, Mayor Cook of East St. Louis, Mayor Carlson of Moline, President Padden of Evanston, Willis Evans, representing the Peoria press, and others.

At the morning session of the second day an exhaustive paper on revenue condition in Illinois, especially as it affects the cities and villages, was presented by Harrison B. Riley, president of the Title & Trust Company of Chicago, and the discussion which followed was led by ex-Mayor McDonald of Decatur and Mayor Beckman of Kankakee. The paper was so excellent that President Padden requested that it be published in full in the local press and the following resolution was passed in relation to it: Resolved, That the Illinois Mayors' Association endorse the general plan submitted by the special tax commission relating to the revenue laws of Illinois, and urge the General Assembly to submit a constitutional amendment providing for a revision of the revenue laws.

The following officers were elected: President, E. N. Woodruff, Peoria; vice-president, W. W. Bennett, Rockford; secretary, John F. Hahn, Evanston; treasurer, J. M. Page, Jerseyville; statistician, Hugo O. Gresser, Chicago.

**International Association for the Prevention of Smoke**—Delegates to the sixth annual convention to the number of forty met at the Board of Works meeting room, City Hall, Newark, N. J., June 28. In the absence of President Paul P. Bird, of Chicago, who has resigned as chief smoke inspector in the "Windy City," Vice-President Daniel Maloney, smoke inspector of Newark, occupied the chair. Mayor Haussling welcomed the guests. He expressed the opinion that the smoke question was one of vital importance, second in importance as a matter concerning public health only to those of pure water and food.

Robert H. Kuss, chief assistant smoke inspector of Chicago, made reply to the Mayor's welcome in the place of Mr. Bird. He spoke briefly, telling of the earnestness with which the smoke inspectors of the country have been working, and in behalf of the association he thanked the city's Executive for the welcome extended.

Secretary R. C. Harris, of Toronto, read the minutes of the last convention, and stated that the inspectors of the various cities represented were required to report what progress had been made by them during the year.

A few verbal reports were then made. The inspectors told of the number of factories and other buildings in which automatic stokers and other devices had been installed at their instigation, and the number of prosecutions and convictions for violation of the ordinances.

The evening session was given up to a general informal discussion of mechanical stokers, steam jet devices, special furnaces and hand-firing. The inspectors from the different cities told of the experiences they have had with the mechanical devices, and representatives of various smoke eliminators explained their virtues.

Prof. R. H. Fernald, consulting engineer of the United States Bureau of Mines, gave an illustrated lecture on the relation of the gas producer to the smoke problem. Health Commissioner Ernest J. Lederle, of New York, was unable to be present, but he sent his paper on the "Enforcement of Smoke Ordinances," and it was read by Secretary R. C. Harris.

"Smoke Prevention in Large Power Stations" was told of in a joint address by James T. Whittlesey and Hervey S. Vasser, chief engineer and assistant, re-

spectively, of the Public Service Corporation.

In the course of his address Professor Fernald said that the reports of the United States Geological Survey show that if the rate of increase in the fuel consumption that has held for the past fifty years is maintained the supply of easily available coal will be exhausted before the middle of the next century. Another estimate places a seventy-five-year limit on the anthracite coal supply and a 200-year limit on the bituminous supply.

Mr. Vasser, in his talk, explained the difficulty that is experienced at the power plant of the Public Service Corporation in regulating the firing of its furnaces. At any time, he said, there may be a demand for more power without any advance notice, and it is this unexpected firing that makes it practically impossible to regulate the furnaces so that the smoke can be entirely eliminated, the speaker declared.

Mr. Whittlesey then illustrated with charts how the amount of smoke at the plant had been reduced in the last few years. He told of the experimenting that had been done with various devices, and of the success that had been achieved. The installation of a "Dutch oven" in front of the furnaces has been the best method, the speaker said, of reducing the amount of smoke.

Richard B. Watrous, secretary of the American Civic Association, spoke at the second day's sessions on "Smoke vs. Civic Beauty." He began with a protest against the desecration of Niagara Falls for electric power. The use of electricity and gas, he said, tends to solve the smoke evil, but he asserted there is plenty of water power in the country without destroying scenic beauty—"a national asset."

"At no time in history," he went on, "have the communities on this continent been so keenly interested in their physical improvement."

This feeling Mr. Watrous credited to the growing belief that beauty of environment conduces to purity in government.

"Every city of ambition has sought beautiful parks, buildings and works of art unsullied by smoke," said Mr. Watrous. "Millions have been spent in hit-or-miss work, but most cities, particularly in the East, show poor results. City planning does not end properly in outlining parks and boulevards. The high-priced experts turn inevitably to smoke abatement."

"In the past it has been the object of trade organizations solely to bring in new industries and have left subjects of beauty to the women. A new time is coming, and they show less aversion to the subject."

"In Newark the Board of Trade has shown marked recognition of the idea of city planning."

C. D. Young, assistant engineer of motive power of the Pennsylvania Railway, opened the discussion of the prevention of smoke by railways. There is much difference between a locomotive and a stationary engine, he said, and this the organization should understand. Too often, he insisted, smoke inspectors are not even skilled in stationary engine problems. Much locomotive smoke, the speaker declared, is due to the necessity of quick firing in the roundhouse for unexpected service. Then, on the road, with a heavy train and an exacting public duty, as much as 6,000 pounds of coal an hour are consumed. A fireman, he said, cannot,



under such circumstances, be as systematic and careful as a man at a stationary boiler. The speaker told of numerous mechanical stoking devices tried by the company without success, and the eventual trial of an underfeed device evolved in the railroad's mechanical department. Eighteen different designs have been attempted in seven years, so that the equipment now used is a product of evolution. The stoker was shown on the screen and minutely explained.

At the last day's session Daniel Maloney was chosen president of the association; J. P. Brown, Indianapolis, was chosen vice-president, and R. C. Harris, Toronto, was re-elected secretary. Indianapolis was chosen as the next meeting place.

George Howaldt, Berlin, Germany, told of conditions in that city. On the Interurban Railway of Berlin, Mr. Howaldt said, coal of low volatile property is used. In addition the Government has caused the adoption of a device which reduces smoke to a minimum. There is little complaint, he said. The device is not a stoker, he explained, but an automatic governor, regulating the flow of oxygen to the grates. "We don't require as much of our engines as you do in this country," the speaker declared. "We use a larger number in ratio to tonnage. Still you must not be too hard on the railroads. Smoke cannot be entirely eliminated. If you go too far you injure railroad efficiency and public service."

F. A. Goodfellow, foreman of the locomotive testing plant of the Pennsylvania Railroad at Altoona, said his company was given scant credit for its efforts to reduce smoke. He told of experiments made and in progress which he said would reduce the evil. Mr. Goodfellow declared if all firemen were thoroughly efficient there would be little for smoke inspectors to do. J. P. Brown, of Indianapolis, said that strict enforcement of smoke laws had done much to instill "efficiency" and reduce smoke. Matthew Nelson, of Cincinnati, favored technological instruction of firemen, both in locomotive and stationary boiler work.

F. T. Howley, of Jersey City, general road foreman of the engine service of the Erie Railroad, told of the rules applied to enginemen. Engineers are held responsible with firemen for coal economy and consequently smoke prevention. He analyzed the road rules and told of experiments with stokers, but he gave greatest credit to training of firemen. R. H. Kuss, acting smoke inspector of Chicago, said the railroads have neglected the lessons applied to stationary firemen. He challenged Mr. Goodfellow's praise of the Pennsylvania Railroad by saying it has tried to settle the smoke question through its legal department. He foretold the eventual use of prepared coal for smoke abatement. Incidentally Mr. Kuss condemned electrification, both because of increased hazards and because he believes it impracticable in the present state of electric science. C. E. Chambers, superintendent of motive power of the Central Railroad of New Jersey, at Jersey City, commended the use of anthracite, but said smoke is not entirely avoidable by the use of any device. He condemned the use of coke, because its sulphur emission is worse than smoke. C. D. Young, of Pittsburgh, of the locomotive department of the Pennsylvania, said there was no good remedy for the roundhouse smoke problem. Mr. Brown, of Indianapolis, retorted that

there is a remedy if the railroads will spend money for tall chimneys.

The principal social entertainment was a trip to Coney Island.

#### Tri-State Water & Light Association.

—The Tri-State Water & Light Association of the Carolinas and Georgia was launched in Columbia June 28. The waterworks men decided to extend its scope of work and embraced the light departments. The initial meeting to organize was a distinct success, and a strong organization is assured. Pursuant to a call, the waterworks men and city officials of South Carolina met in the City Council chamber. Representatives from Georgia and North Carolina were present. The meeting was called to order by W. F. Stieglitz, council superintendent of the Columbia waterworks, who stated the object of the meeting, afterward introducing Mayor W. H. Gibbs, who made the address of welcome. Mayor Kenneth Baker, Greenville, made the response.

W. F. Stieglitz was elected temporary chairman and the convention and the regular order of business was taken up. The discussion on the advantages and benefits was taken part in by Messrs. Nears, of Salisbury, N. C.; W. T. Jones, of Fayetteville; F. C. Wyse, of Columbia; Collivan, of Abbeville; Eastering, of Union, and Sproles, of Greenwood. After the discussion Superintendent A. J. Sproles, of Greenwood, moved that the name of the Association be the Tri-State Water & Light Association of the Carolinas and Georgia. This was adopted amid much enthusiasm.

The chairman appointed F. C. Wyse, of Columbia; C. F. Blout, of Atlanta, and W. A. Neave, of Salisbury, on committee on organization and they reported the list of officers to be filled and fees. Their report was adopted.

The Association elected the following officers: W. F. Stieglitz, Columbia, president; A. J. Sproles, Greenwood, first vice-president; W. T. Jones, Fayetteville, N. C., second vice-president; J. S. Ferguson, Augusta, third vice-president; J. W. Neave, Salisbury, N. C., secretary; A. D. Barnes, Columbia, treasurer.

The object of a waterworks association was explained as follows by W. F. Stieglitz, of Columbia:

"It is incumbent upon me to make a statement concerning the movement to form a waterworks association. When the present City Council of Columbia was organized I was charged with the superintendency of the Water Department. The work was new to me, and I felt the great weight of responsibility that was attached to the position. It was my ambition to learn all I could about our system and try to be of some service to the department. In a short time the thought came into my mind that an association composed of waterworks men would be of inestimable value to every member who embraced the opportunities such an organization would afford. Exchanging ideas and relating to each other all manner of troubles common to water departments with prevailing methods of remedying them would be instructive and beneficial to all. With this thought in mind I mailed circulars to department superintendents and mayors calling attention to the idea, and I was indeed gratified at the responses made. Later a second circular was mailed, signed by

Messrs. McClure, of Anderson; Banks, of St. Matthews; Godfroy, of Darlington; Barnwell, of Yorkville, and myself, naming the proposed entrance fee and dues. The third circular, signed by the committee, selected the date for the first meeting and this was followed by the program, which was mailed two weeks ago.

Dr. J. W. Babcock, who had charge of the Columbia waterworks system for a number of years, read a paper on the history of the waterworks system in Columbia during the past 84 years.

Dr. William A. Boyd, city health officer, discussed the relation of the waterworks system to the health of the city.

J. M. Diven, secretary of the American Waterworks Association, read a paper in which he indorsed the organization formed here. This is the first local waterworks association to be formed in the United States.

**American Society for Testing Materials**—Nearly 300 engineers, chemists and others engaged in technical industries met at the Traymore Hotel, Atlantic City, N. J., June 27. One of the notable addresses was that of Allerton S. Crishman, who, after reviewing the history of the production of iron from the early ages, asserted that while 100 per cent purity will undoubtedly never be achieved, it is safe to assume that at least commercial purity will be attained if the efforts which have produced the present commercial iron of such unusual degrees of purity are not relaxed.

"If the selling price of pure iron was commensurate with the expense attendant on securing metal entirely free from copper," the speaker continued, there is no reason why such irons could not be readily produced; but it would immediately render useless for the purpose much of the pig iron and most of the scrap at present available. The conservation of our natural resources demands the use of scrap, and even if this were not already the customary practice among manufacturers, progressive development would insist on its observance.

"The manufacture of pure iron in open hearth furnaces when the process is properly carried out presents serious but not insurmountable difficulties. Labor, furnace repairs and the item of metallurgical waste must all be necessarily in excess of those encountered in the making of mild steel, but the process holds forth the same tonnage possibilities as in the making of mild steel, and permits of the making of iron on a basis comparable to the high pressure methods employed in modern steel manufacture. The work done so far would indicate that there is no reason why ingot iron should not have a wide and rapidly increasing use."

#### Municipal Clerks of New Jersey—

Sighing in common at the burdens imposed by the Geran election law, the municipal clerks who attended the meeting of the Finance Committee of the Essex Board of Freeholders, at Newark, N. J., wound up the session by forming the nucleus of a State organization, the object of which will be mutual protection from "adverse and burdensome legislation" in which figures no mention of increased pay. City Clerk James F. Connelly, of Newark, was made chairman, and Lincoln E. Rowley, of East Orange, secretary. The chairman was authorized to appoint a committee of three, over which he will preside, to formulate a plan to embrace the State.

Those who subscribed as original members, constituting all who were present at the Finance Committee meeting, in addition to those already named, were as follows: M. A. Fitzsimmons, village of South Orange; T. E. Brooks, Verona; E. R. Arcularius, township of South Orange; Floyd G. Stebbins, township of Cedar Grove; Edward E. Mathes, Belleville; A. Ross Force, Livingston, and J. B. Woolston, the county clerk.

"It all goes up to the municipal clerk," said Mr. Rowley, commenting on Mr. Gano's proposal of an association. "It is easy enough for the Legislature to add to our responsibilities. It is this for the clerk and that for the clerk. In the last few years our work has trebled in that way. But nothing is said about a commensurate advance in compensation." A state convention is planned for the fall.

**International Congress of the Applications of Electricity**—At the congress to be held at Turin, Italy, September 10-17, 1911, among the papers to be presented will be one by Dr. Erlwein, Germany, on Sterilization of Water by Processes Employing Electricity.

**Street Railway Association of the State of New York**—The annual convention of the Street Railway Association of the State of New York was held at Cooperstown. The program embraced several papers concerning technical matters in the railway business and the annual election of officers. Joseph H. Choate of the Otsego & Herkimer Railway was elected president; W. H. Collin, of Gloversville, first vice-president; E. J. Cook, of Rochester, second vice-president; J. C. Collins, of Rochester, secretary, and H. M. Beardsley, of Elmira, treasurer.

**Dresden Hygiene Exhibition**—On the occasion of the Dresden Hygiene Exhibition for the first time an attempt has been made to collect official statistical material relating to the general state of health of all civilized nations.

The task would seem to present enormous difficulties when one considers that more than 300 statistical Government offices of the world are participating in contribution to the enormous material, and that the number is constantly increasing owing to the great development of all nations in culture and hygiene generally. A great service will therefore be rendered to science by the Hygiene Exhibition in publishing the sources wherefrom this valuable information can be obtained, and a better way can hardly be imagined in proving the practical value of hygiene than by so elaborate a statistical work.

**League of Virginia Municipalities**—President R. T. Stead, Norfolk, Va., has announced that the annual meeting of the league will be at Cape Charles, Va., September 14 and 15. All towns and cities of the State have been invited to send delegates to the convention and it is stated that an interesting program will be presented. At one time, about a year ago, it seemed as if this society would become disorganized. The officers of the society and other public spirited men, however, got together, with the result that last year's annual meeting was very interesting and useful. The officers of the society are: R. E. Stead, City Clerk, Norfolk, president; J. Davis Reed, Mayor, Portsmouth; Maryus Jones, Mayor, Newport News; J. Frank Earb, Councilman, Norfolk, vice-presidents; L. C. Brinson, Councilman, Portsmouth, secretary-treasurer.

## Calendar of Meetings

- July 3-8. **South Dakota State Firemen's Association**.—Tournament and Convention, Lead, S. D.—Charles P. Coolidge, Lead, S. D.
- July 21-23. **Wisconsin State Firemen's Association**.—Annual Convention, Fort Atkinson, Wis.
- July 25-26. **Western New York Firemen's Association**.—Convention, Springville, N. Y.
- July 25-28. **Iowa Firemen's State Association**.—Tournament, Des Moines, Ia.—N. J. Francis, Secretary, Des Moines.
- July 25-27. **Wisconsin Paid Firemen's Association**.—Annual Convention, Superior, Wis.—Chief Johnson, Superior, Wis.
- July 25-27. **Central New York Volunteer Firemen's Association**.—Annual Convention, Waverly.—Thomas Knobel, Homer, N. Y.
- July 25-28. **Upper Peninsula Firemen's Association**.—Tournament, Bessemer, Mich.
- July 25-28. **American Acetylene Association**.—Annual Convention, Atlantic City, N. J.
- August 1-3. **Ohio Chiefs' Association**.—Convention, Cedar Point, O.—Chief, A. Hegeman, Cedar Point.
- August 1-3. **Ohio Fire Chiefs' Association**.—Annual Convention, Cedar Point.—Chief Loller, Chairman Executive Committee, Youngstown, O.
- August 10-11. **South Carolina Good Roads Association**.—Annual Convention, Spartansburg. Fingal C. Black, Secretary, Columbia, S. C.
- August 15-17. **Utah State Firemen's Association**.—Convention, Provo, Utah.—C. F. Stillman, Bingham, Utah.
- August 15-18. **Firemen's Association of the State of New York**.—Rochester, N. Y.—Thos. Honohan, Secretary, Frankfort, N. Y.
- August 23-25. **Virginia State Fireman's Association**.—Convention and Tournament, Newport News.
- September 4-6. **Montana State Firemen's Association**.—Annual Convention, Billings.—E. M. Nelson, vice-president, Billings, Mont.
- September 11-14. **Pacific Coast Association of Fire Chiefs**.—Nineteenth Annual Convention, Vancouver, B. C.
- September 12-15. **American Association for Highway Improvement**.—First Annual Convention, Richmond, Va.—Logan Waller Page, President, United States Office of Public Roads, Washington, D. C.
- September 12-15. **International Association of Municipal Electricians**.—Annual Convention, St. Paul, Minn.—Clarence R. George, Secretary, Houston, Tex.
- September 14-15. **League of Virginia Municipalities**.—Annual Meeting, Cape Charles.—L. C. Brinson, Secretary, 515 Henry Street, Portsmouth, Va.
- September 18-30. **International Municipal Congress and Exposition**.—Chicago, Ill.—Curb M. Treab, Secretary, Great Northern Building, Chicago, Ill.
- September 18-October 1. **Fourth International Good Roads Congress**.—Chicago, Ill.—J. A. Rountree, Secretary, Birmingham, Ala.
- September 19-22. **International Association of Fire Engineers**.—Annual Convention, The Auditorium, Milwaukee, Wis.—James McFall, Secretary, Roanoke, Va.
- September 19-22. **American Hospital Association**.—New York City. J. N. E. Brown, M.D., Secretary, Toronto General Hospital, Can.
- September 24-30. **International Congress on Tuberculosis**.—Rome, Italy.—Professor Ascoli, Secretary-General, Via Lucina, Rome, Italy.
- September 26-29. **American Society of Municipal Improvements**.—Grand Rapids, Mich.—A. Prescott Folwell, Secretary, 239 West Thirty-ninth street, New York City.
- October 4-6. **League of American Municipalities**.—Annual Convention, Atlanta, Ga.—John MacVicar, Secretary, Des Moines, Ia.
- October 18-20. **Massachusetts State Firemen's Association**.—Annual Convention, Lawrence, Mass.—Dr. Arthur Burt, Secretary, Taunton, Mass.
- November 13-17. **National Municipal League**.—Annual Meeting, Richmond, Va.—Clinton Rogers Woodruff, Secretary, North American Building, Philadelphia, Pa.

## PERSONALS

ARNOLT, DR. F. M., of the Hackensack, N. J., Board of Health, recently spoke before the Business Men's Association at Hasbrouck Heights upon "Sewerage and Sewerage Disposal."

ARRELANO D. PASCUAL has been appointed Commandte of Police in Juarez by General Blanco. Former Chief of Police Mariano M. Rodriguez was appointed his assistant.

BIDDLE, SAMUEL C., has been appointed City Auditor of Wilmington, Del.

COMBS, JAS. H., has been appointed a member of the Police and Fire Commission to succeed Dr. C. T. Grimstead, resigned.

EVANS, LOUIS H., and Hugh Pattison have been appointed engineers to the Chicago Association of Commerce Committee, investigating smoke abatement and electrification of railway terminals.

FILENE, EDWARD A., Boston, Mass., has been appointed chairman of the Metropolitan Planning Commission. John Nolen and J. Randolph Coolidge, Jr., are the other members.

GOVERNOR O'NEIL of Alabama has announced the appointment of the first Commissioners for Huntsville, under the new commission form of government. They are: Earl Smith, appointed for two years; Lawrence Cooper, one year, and R. L. O'Neil, three years.

HERBERT, H. M., has been appointed Chief Engineer of the Camden, N. J., water works.

HIGH, SAMUEL Y., has been appointed superintendent of Kansas City Water Works at a salary of \$4,000 per year.

HOOD, JAS. K., has been elected Mayor of Dalles, Ore.

HORNBECK, ISAIAH, Street Commissioner of Branchville, N. J., has been appointed water superintendent, succeeding Frank R. Dalrymple, resigned.

HUFFY SAMUEL, City Comptroller of Camden, N. J., has retired on a pension at half salary, and Assistant Comptroller Sidney P. McCord will fill the unexpired term.

HURLEY, PETER E., formerly general manager of the Trenton, N. J., trolley lines, has become general manager of the J. C. Rock Paving Co.

JUDSON, MAJOR WM. V., Engineering Commissioner, D. C., received the honorary degree of Master of Arts at the recent commencement of Harvard University.

MCGUCKEN, JOHN J., Deputy Commissioner of Public Works of Milwaukee, Wis., aged 57 years, died of heart failure after being carried from his office in the city hall one day last week. Mr. McGucken had not been at work for several weeks and returned the day he was stricken. He was appointed Deputy Commissioner on Aug. 30, 1910, under the reorganized Department of Public Works. He had been in the employ of the city for 26 years.

MODJESKI, RALPH, consulting engineer of Chicago, recently visited Toledo to confer with Service Director Cowell and engineers of the F. A. T. H. Construction Co. regarding difficulties met with in the construction of the Cherry street bridge.

SICKELS, JACKSON E., Engineer in charge of road construction in Virginia, died in Washington, D. C., June 25.

SOMES, JOHN J., City Clerk of Boston, Mass., recently entered upon his thirtieth year of service as City Clerk. His records are said to be models of neatness and excellent arrangement.



## THE MUNICIPAL INDEX

In Which Are Listed and Classified by Subjects All Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Leading Periodicals

It is our purpose to give in the second issue of each month a list of all articles of any length or importance which have appeared in all the American periodicals and the leading English, French and German ones, dealing more or less directly with municipal matters. The index is kept up to date, and the month of literature covered each time will be brought up to within two or three days of publication. Our chief object in this is to keep our readers in touch with all the current literature on municipal matters. In furtherance of this we will furnish any of the articles listed in the index for the price named after each article, except that where an article is continued in two or three issues of the paper, the price given is for each of said issues. In addition to the titles, where these are not sufficiently descriptive or where the article is of sufficient importance, a brief statement of its contents is added. The length also is given, and the name of the author when it is a contributed article.

## ROADS AND PAVEMENTS

**Improvement of a Trunk Line Road in Northwestern Connecticut.** Illustrated, 6 pp., Good Roads, July. 10 cts.

**State Aid Road Law in Wisconsin, New.** 2 1-2 pp., Good Roads, July. 10 cts.

**Alaska Road Commission.** 1-4 p., Municipal Journal, June 28. 10 cts.

**County Grants and Road Maintenance.** Paper before Institution of Municipal Engineers. By J. W. Gleave. 3 pp., Surveyor, June 23. 40 cts.

**French Country Roads, Making and Management of.** By Edwin Conner. 1 1-2 pp., Good Roads, July. 10 cts.

**Massachusetts, Methods of Maintenance of State Highways of.** From annual report for 1910 of A. W. Dean, chief engineer. 1 p., Engineering-Contracting, June 21. 10 cts.

**Metropolitan Park Commission of 1910, Road Repairs and Road Maintenance Work of the.** 1 p., Engineering-Contracting, June 21. 10 cts.

**Road Problem in the Light of Our Present Information.** Paper before Birmingham Good Roads Conference. By Clifford Richardson. 2 pp., Good Roads, July. 10 cts.

**Specifications, Road Board.** Discussion by R. O. Wynne-Roberts. 1 p., Surveyor, June 16. 40 cts. 2 pp., Surveyor, June 23. 40 cts.

**Instructions of Ohio State Highway Department for the Guidance of Its Resident Engineers on State Highway Work.** 3 pp., Engineering-Contracting, June 14. 10 cts.

**Tire Widths, Wagon Loads and.** Power of municipal corporations to limit loads carried over their streets. Decisions in several states. By John Simpson. 1 pp., Municipal Journal, July 5. 10 cts.

**Convicts, Road Making.** Paper before Good Roads Congress. By E. S. Whitin. 1 p., Engineering Record, June 17. 10 cts.

**Rollers and Road Rolling, Steam.** Paper before Institution of Municipal Engineers. By Walton Maughan. 4 1-2 pp., Surveyor, June 16. 40 cts.

**Distributor Demonstration under the Auspices of the Massachusetts Highway Association.** Illustrated, 3 pp., Good Roads, July. 10 cts.

**Stones, Relative Value of Road.** Use of Mechanical Tests. Paper before Irish Road Congress. By H. F. Gullan. 1 p., Surveyor, June 9. 40 cts.

**Leather Roads.** 1-4 p., Municipal Journal, July 5. 10 cts.

**Bituminous Materials, Work of the Chemist of the Massachusetts Highway Commission and Methods of Analyses Used for.** From report of W. H. Clark, chemist Massachusetts Highway Commission. 1 p., Engineering-Contracting, June 28. 10 cts.

**Abstract of Specifications Relating to the Tar Treatment of Roads of the Road Board of Great Britain.** 1 p., Engineering-Contracting, June 21. 10 cts.

**Asphalt Macadam Construction at Santa Ana, Cal.** By W. A. Gillette. 2 pp., Engineering-Contracting, June 28. 10 cts.

**Trinidad Asphaltic Petroleum and Its Use as a Road Material.** By Albert Sommer. 2 pp., Engineering Record, July 1. 10 cts.

**Pitch Macadam Pavements in Liverpool.** 1 1-2 pp., Good Roads, July. 10 cts.

**Oiled Earth Road Construction in Kansas.** 1 p., Engineering-Contracting, June 14. 10 cts.

**Maintenance, Repair and Reconstruction of Macadam Roads.** Paper before Ohio Engineering Society. By D. W. Seitz. 1-2 pp., Canadian Engineer, June 22. 15 cts.

**Street of To-day and To-morrow, The.** Paper before Institution of Municipal Engineers. By G. W. Hayler. 4 pp., Surveyor, June 9. 40 cts.

**Street Paving Problem.** Paper before

League of American Municipalities. 3 pp., Western Municipal News, July. 10 cts.

**Extravagance of Paving Methods in New York.** Report to Board of Estimate and Apportionment. By N. P. Lewis. 2 pp., Engineering Record, July 1. 10 cts.

**The Street Surface.** Paper before Third National Conference on City Planning. By G. W. Tillson. 2 1-2 pp., Good Roads, July. 10 cts.

**Asphalt Paving Blocks, The Manufacture of.** By H. C. Hottel. 1 1-2 pp., Good Roads, July. 10 cts.

**Specifications of the Association for Standardizing Paving Specifications, New.** 7 pp., Good Roads, July. 10 cts.

**Widths, Standardized Street.** Paper before Third National Conference on City Planning. By John Nolan. 2 1-2 pp., Good Roads, July. 10 cts. 2 pp., Canadian Engineer, June 22. 15 cts.

**Narrowing of Minor Residence Streets as Affecting Tenant and Property Owner.** Paper before Third National Conference on City Planning. By C. M. Robinson. 2 pp., Engineering-Contracting, June 28. 10 cts.

**Grades, Establishing Street.** 1-3 p., Municipal Journal, June 28. 10 cts.

**Adopting Street Grades.** 1-4 p., Municipal Journal, July 5. 10 cts.

**Footway Tunnel Under the Thames, Woolwich.** Paper before Institution of Municipal and County Engineers. By E. H. Tabor. 1-2 p., Contract Journal, May 31. 40 cts. 1 p., Engineering Record, June 17. 10 cts.

**Subway, The Paulding and Mace Avenue, New York.** 1 2-3 pp., Engineering Record, June 24. 10 cts.

**Underground Work in Philadelphia.** All underground structures under control of Board of Highway Supervisors; regulations for constructing electric conduits, pipes and vaults; locating and mapping these; standard map details. Illustrated, 4 pp., Municipal Journal, July 5. 10 cts.

**Control and Cleaning of Streets.** Paper before Annual Conference of Mayors, New York State. By A. Prescott Folwell. 2 pp., Canadian Engineer, June 15. 15 cts.

**Devices, Street Department.** Illustrated, 1 p., Municipal Journal, June 28. 10 cts.

**SEWERAGE AND SANITATION**

**Sewer Work in Baltimore.** 1-4 p., Municipal Journal, July 5. 10 cts.

**Main Drainage and Other Municipal Works of Govan.** Paper before Institution of Municipal and County Engineers. By F. G. Holmes. Illustrated, 2 pp., Contract Journal, May 31. 40 cts. Illustrated, 10 pp., Surveyor, June 9. 40 cts.

**Constructing a Concrete Storm Sewer at Montgomery.** By G. C. Bayles. Illustrated, 1 p., Engineering Record, June 24. 10 cts.

**Brick and Concrete Sewer Construction.** Paper before Western Society of Engineers. By Victor Windett. 2 pp., Engineering-Contracting, June 28. 10 cts.

**Constructing a Submerged Sewer Outfall into a Stream.** By J. C. Schneidwind. Illustrated, 1 p., Engineering-Contracting, June 14. 10 cts.

**House Connection Marker.** Illustrated, 2-3 p., Municipal Journal, July 5. 10 cts.

**Sewer Maintenance in Richmond Borough.** Gasoline pump for emptying catch basins and stopped sewers; jointed rods and tools used thereon; claws, root cutters, sand scoops, barbed spears; cost of cleaning; concrete catch basins. Illustrated, 3 pp., Municipal Journal, July 5. 10 cts.

**The Cleaning of Sewers.** By R. W. Hindhaugh. Illustrated, 1 1-2 pp., Surveyor, June 16. 40 cts.

**Pollution of New York Harbor.** Report of the Metropolitan Sewerage Commission. 2 1-2 pp., Surveyor, June 23. 40 cts.

**Sewage-Polluted Sea Water.** Chemical changes occurring in one per cent mixtures as determined by laboratory experiments. 1 1-2 pp., Municipal Journal, June 21. 10 cts.

**Sewage Purification Results at Plainfield**

During 1910-11. By R. S. Lanpher. 1 p., Engineering Record, July 1. 10 cts.

**Rochester Sewage Disposal.** 1-4 p., Municipal Journal, July 5. 10 cts.

**Sewage Disposal Plant at Santa Clara.** Illustrated, 1 p., Engineering Record, June 17. 10 cts.

**Sewage Disposal at Pleasanton, Cal.** 1 1-3 pp., Engineering Record, July 1. 10 cts.

**Treatment of the Govan Sewage.** Paper before Institution of Municipal and County Engineers. By W. C. Easton. Illustrated, 2 pp., Contract Journal, May 31. 40 cts. Illustrated, 4 pp., Canadian Engineer, June 29. 15 cts.

**Mechanical Purification of Sewage.** 5 pp., La Technique Sanitaire, June. 50 cts.

**Exhibit by Metropolitan Sewerage Commission.** 3-4 p., Municipal Journal, June 28. 10 cts.

**Sanitation in the South.** 1-2 p., Municipal Journal, June 28. 10 cts.

**New York's Health Conditions.** 1-4 p., Municipal Journal, June 21. 10 cts.

**Laws, Ontario Health.** 1-4 p., Municipal Journal, June 28. 10 cts.

**Bakeries and Restaurant Kitchens, Sanitation of.** Paper before American Public Health Association. By C. D. Ball. 4 pp., American City, June. 10 cts.

**Food Products, Protection of Exposed.** Paper before Ohio Boards of Health. By J. M. Dennison. 8 pp., Bulletin Ohio State Board of Health, May.

**Flies and Typhoid Infection.** 1-3 p., Municipal Journal, July 5. 10 cts.

**The House Fly.** From National Geographic Magazine. By N. A. Cobb. Illustrated, 9 pp., Bulletin North Carolina Board of Health, April.

**Conquest of the Fly with Our Present Equipment.** By W. S. Rankin. 2 pp., Bulletin North Carolina Board of Health, April.

**Typhoid Fever Epidemic at Erie.** By C. A. Jennings. Illustrated, 8 pp., Engineering Record, June 17. 10 cts.

**Typhoid Fever from a Public Health Standpoint.** By Dr. A. W. Fly. 3 1-2 pp., Bulletin Texas State Board of Health, May.

**Housing Conditions, Unsanitary.** Paper before Conference of Ohio Boards of Health. By O. W. Davis. 4 pp., Bulletin Ohio State Board of Health, May.

**Dust, Prevention of Disease by the Elimination of.** Paper before Mayors' Annual Conference of the State of New York. By F. L. Hoffman. 4 pp., Bulletin Texas State Board of Health, May.

**Investigations, Laboratory and Field.** 1-3 p., Municipal Journal, June 21. 10 cts.

**Isolation, Present Position of.** By H. E. Corbin. 10 pp., Journal Royal Institute of Public Health, June. 60 cts.

**Disinfection by Means of Formaldehyde.** By G. Ney. 5 pp., La Technique Sanitaire, June. 50 cts.

## WATER SUPPLY

**Water Supplies of the River Basin.** Paper before Association of Water Engineers. By W. R. Baldwin-Wiseman. 1 1-2 pp., Surveyor, June 9. 40 cts.

**Water Supply and Sewerage of the National Rifle Range, Camp Perry, Ohio.** By R. W. Pratt. Illustrated, 2 1-2 pp., Engineering News, June 22. 15 cts.

**The Derwent Valley Water Scheme.** Paper before Association of Water Engineers. By Edw. Sandman. 1 p., Surveyor, June 16. 40 cts.

**Water Supply of Williamson, W. Va., and Its Relation to an Epidemic of Typhoid Fever.** By W. H. Frost. 2 pp., Water, June 15. 25 cts.

**Water Works System at Oakland.** 1 1-2 pp., Fire and Water, June 28. 10 cts.

**Pipe Moulding Machines and Continuous Pipe Foundry at Coshocton, Ohio.** Illustrated, 4 1-2 pp., Engineering News, June 15. 15 cts.

**Wood Stave Pipe.** Abstract of paper before American Water Works Association. By T. C. Hatton. 2-3 p., Engineering

Record, June 17. 10 cts. 11-3 pp., Engineering-Contracting, June 14. 10 cts.

Proposed New Formulas for Computing the Thickness of Cast Iron Pipe. From paper before New England Water Works Association. By Allen Hazen, 3 pp., Engineering-Contracting, June 21. 10 cts.

Shot and Chilled Iron in Cast Iron Water Pipes. 1-2 p., Canadian Engineer, June 29. 15 cts.

Steel Pipes for Water Works. From Journal New England Water Works Association. By E. Kuichling. 2 pp., Water, June 15. 25 cts.

Comparative Merits of Steel and Cast-Iron Pipe. Paper before American Water Works Association. By Allen Hazen. 1 p., Engineering News, June 15. 15 cts. 21-2 pp., Canadian Engineer, June 15. 15 cts. 1 p., Engineering Record, June 17, 10 cts.

Reservoir, Concrete-Covered, for the Town of Brookline. By G. S. Whitehead. Illustrated, 21-3 pp., Engineering Record, July 1. 10 cts.

Constructing Reservoir on Soft Ground at Jacksonville, Fla. Illustrated, 2 pp., Contractor, July 1. 20 cts.

Intakes, Emergency. Abstract of paper before American Water Works Association. By W. P. Mason, 1-3 p., Engineering Record, June 17. 10 cts.

Tunnel 10-A, Little Lake Division, of the Los Angeles Aqueduct, Five Months' Work. By C. H. Richards. 2-3 p., Engineering News, June 22. 15 cts.

Driving a Wet Aqueduct Tunnel in Hard Rock. The Rondout Siphon. By B. H. Wait. Illustrated, 3 pp., Engineering Record, June 17. 10 cts.

Pumping Engines, Saving Effectuated with. By F. W. Salmon. 1 p., Power, July 4. 5 cts.

Purification of Drinking Water. Paper before American Water Works Association. By J. C. Leal. 11-2 pp., Canadian Engineer, June 15. 15 cts.

Modern Methods of Water Purification. By S. Rideal. 11-2 pp., Water, June 15. 25 cts.

Grand Forks Rapid Sand Filters. Two small and two large settling basins: alum and hypochlorite fed together into water; most of purification effected in settling basin; water reaching filters practically sterile. By H. G. Lykken. Illustrated, 4 pp., Municipal Journal, June 21. 10 cts.

Rapid Sand Filtration, Grand Forks. By H. G. Lykken. Illustrated, 2 pp., Engineering Record, June 24. 10 cts.

Operating Results, Albany Filter Plant. 12-3 pp., Engineering Record, June 24. 10 cts.

Mechanical Filter Plant at Charleroi, Pa. Illustrated, 12-3 pp., Engineering Record, June 17. 10 cts.

Ozone Plant at Great Falls, S. C. 1-2 p., Engineering Record, July 1. 10 cts.

Sterilization of Water by Ultra-Violet Rays. Abstract of paper before American Water Works Association. By A. E. Walden and S. T. Powell. Illustrated, 2-3 p., Engineering Record, June 17. 10 cts.

Examination of Drinking Water. Illustrated, 2 pp., Canadian Engineer, June 29. 15 cts.

Interpretation of Water Analyses. Abstract of paper before American Water Works Association. By D. D. Jackson. 1-2 p., Engineering Record, June 17. 10 cts.

Occurrence of a Supposed Undescribed Coll-Form Organism in Drinking Water. By G. N. Hall. 4 pp., Journal Royal Institute of Public Health, June. 60 cts.

Hot Water Troubles. Abstract of paper before American Water Works Association. By G. C. Whipple. 2 pp., Engineering Record, June 17. 10 cts.

Meter Reading Directions. 1-4 p., Municipal Journal, June 28. 10 cts.

Investigation of Underground Water Waste in Washington, D. C. Abstract of paper before American Water Works Association. By W. A. McFarland. 1 p., Engineering Record, June 17. 10 cts.

Fire Line Meters. Abstract of paper before American Water Works Association. By Geo. Houston. 1-3 p., Engineering Record, June 17. 10 cts.

Rates Charged for Water Are Too Low. By N. S. Hill, Jr. 21-2 pp., Public Service, July. 25 cts.

Determination of a Reasonable Return for Public Fire Hydrant Service. Paper before American Water Works Association. By Leonard Metcalf, Emil Kuichling and W. C. Hawley. Illustrated, 41-2 pp., Engineering News, June 15. 15 cts. 4 pp., Engineering Record, June 17. 10 cts.

Water Rates. Abstract of paper before American Water Works Association. By G. G. Earl. 11-3 pp., Engineering Record, June 17. 10 cts. 1 p., Canadian Engineer, June 15. 15 cts.

Management, Water Works. Paper before Indiana Sanitary and Water Supply Association. By C. H. Hurd. 11-2 pp., Canadian Engineer, June 15. 15 cts.

Experiences in India, Some Water

Works. Abstract of paper before American Water Works Association. By R. W. Lawton. 1-2 p., Engineering Record, June 17. 10 cts.

## STREET LIGHTING AND POWER

Street Lighting Data in Thirty-six Cities. 2 pp., Municipal Journal, June 28. 10 cts.

Street Lighting in Warren. Illustrated, 1-2 p., Municipal Journal, July 5. 10 cts. Warren's Night Illumination. By T. S. Dodd. Illustrated, 3 pp., Illuminating Engineer, July. 20 cts.

"Gas White Way." Further Progress of the. Illustrated, 4 pp., Illuminating Engineer, July. 20 cts.

Some Gas-Making Problems Explained. How changed conditions have affected industries. By F. P. Royce. Illustrated, 2 pp., Public Service, July. 25 cts.

Appraisal of the Madison Gas & Electric Company. 3 pp., Engineering-Contracting, June 28. 10 cts.

Determination of the "Fair Rate of Return" on the Value of Property of the Madison Gas & Electric Company. 5 1-2 pp., Engineering-Contracting, June 21. 10 cts. 2 pp., Canadian Engineer, June 22. 15 cts.

Electricity, Theory and Development of Artificial Lighting by. By G. W. Pater-son. 12 pp., Michigan Technic, April. 50 cts.

Power Supply from Low Head Hydraulic Plants and Steam Plants, Economics of, and the Comparison of Costs. Paper before Iowa Society of Engineers. By A. H. Ford. 1 p., Engineering-Contracting, June 14. 10 cts.

## FIRE AND POLICE

Fire Waste, American. Review of one year's losses. 4 pp., Insurance Engineering, June. 25 cts.

Fire Waste. By Powell Evans. 12 pp., Survey, July 1. 25 cts.

Conflagration Hazard at New Britain, Small. From the report of the National Board of Fire Underwriters. 1 p., Fire and Water, June 21. 10 cts.

High Pressure Fire Service and Portable Fire Engines. Abstract of paper before American Water Works Association. By C. A. Hague. 1-2 p., Engineering Record, June 17. 10 cts.

Jacksonville High Pressure Pumping System. 5 pp., Insurance Engineering, June. 25 cts.

Apparatus, Electrically Propelled Fire. From The Fireman. London. 2-3 p., Fire and Water, June 21. 10 cts.

Gasoline vs. Oats. Illustrated, 11-2 pp., Fireman's Herald, July 1. 5 cts.

Association. Abstracts of Papers presented before New York State Fire Chiefs. 6 pp., Fire and Water, June 28. 10 cts.

The Policeman and Public Safety. By H. F. Griffin. 8 pp., The Outlook, July 1. 5 cts.

## BRIDGES AND

### STRUCTURAL MATERIALS

Bridge Built of Assembled Sections. By E. P. Bailey. Illustrated, 3 pp., Cement World, June. 15 cts.

Arch Rib Sections. Previously Molded. 1-3 p., Engineering News, June 15. 15 cts.

Steel Centering for the 280-foot Rocky River Concrete Arch. Illustrated, 2 pp., Engineering News, June 15. 15 cts.

A Suspended Flexible Centering for Masonry Arches as Used on the Chickahominy River Bridge, Va. By Philip Aylett. Illustrated, 42-3 pp., Engineering News, June 15. 15 cts. Illustrated, 7 pp., Engineering-Contracting, June 21. 10 cts.

Disadvantages of Rigid Falsework for Arch Construction. By Philip Aylett. Illustrated, 9 pp., Cement Age, June. 15 cts.

Viaduct, Street Spanned by Concrete. Illustrated, 1 p., Cement Era, June 5 cts.

Cement Testing, Discrepancies in. By F. C. Young. Illustrated, 11-2 pp., Engineering News, June 29. 15 cts.

Some Problems of the Cement Industry. By W. S. Landis. 3 pp., Cement Era, June. 5 cts. 51-2 pp., Cement Age, June. 15 cts.

Mortar, Handling of Cement, by Compressed Air. 1 p., Engineering Record, July 1. 10 cts.

Concrete Methods in Rochester. 1-4 p., Municipal Journal, June 21. 10 cts.

Forms of Concrete. By J. D. Stevenson. Paper before Engineers' Society of Western Pennsylvania. Illustrated, 5 pp., Cement Era, June. 5 cts.

Iron in Concrete, Electrolytic Corrosion of. Paper before Western Society of Engineers. By C. F. Burgess. 3 pp., Canadian Engineer, June 15. 15 cts.

Concrete Breakwaters or Piers, Steel Forms for. Illustrated, 1 p., Engineering News, June 29. 15 cts.

Economy Gained by Proper Arrangement of Concrete Mixing Plant. Illustrated, 1 p., Engineering-Contracting, June 14. 10 cts.

Standardization of Drawings of Reinforced Concrete Work. From report to Concrete Institute. 11-2 pp., Surveyor, June 23. 40 cts.

The "Ransome Unit System." A separately molded reinforced-concrete construction. By Alexis Saurbrey. Illustrated, 2 pp., Engineering News, June 15. 15 cts.

Sheet Piling, Strength of. Report of American Railway Engineering Association. 1-3 p., Engineering News, June 15. 15 cts.

## GOVERNMENT AND FINANCE

Commission, City Government. By F. H. McGregor. 9 pp., Public Officials' Magazine, June. 10 cts.

Departments of Chicago, Organization of the Public Works. By J. C. Schneidwind. 5 pp., Engineering-Contracting, June 28. 10 cts.

Finance in Great Britain, Municipal. Reports and papers presented before Institute of Municipal Treasurers and Accountants, 6 pp., Municipal Journal, (London), June 17. 15 cts.

Budget Classification, Municipal. 2-3 p., Municipal Journal, July 5. 10 cts.

Appraising Real Estate, the "Sales Method" of. 11-2 pp., Engineering-Contracting, June 28. 10 cts.

Taxes, American Eyes and Canadian. 41-2 pp., Western Municipal News, July. 10 cts.

Getting Down to Tax in Pittsburg. By S. M. Harrison. Illustrated, 31-2 pp., Survey, July 1. 25 cts.

Public Service Corporations, Going Value of, as Determined by the Wisconsin Railroad Commission in the Madison Gas & Electric Case. 4 pp., Engineering-Contracting, June 14. 10 cts.

The Deficit Theory of Development Expense of Public Service Corporations and an Erroneous Application of the Theory by the Wisconsin Railroad Commission. 11-2 pp., Engineering-Contracting, June 14. 10 cts.

State Control of Public Utility Companies. Commission should not attempt to operate or manage property. By T. N. Vail. 31-2 pp., Public Service, July. 25 cts.

## MISCELLANEOUS

Town Planning and Co-Partnership Housing. By J. S. Nettlefold. Illustrated, 31-2 pp., Survey, June 3. 25 cts.

City Plans and Planners. By C. M. Robinson. Illustrated, 4 pp., Survey, June 3. 25 cts.

Some Aspects of Town Planning. By Raymond Unwin. 13 pp., Journal Royal Institute of Public Health, June. 60 cts.

Lot Depths in City Planning. Effect of density of population on character of dwellings; depths desirable for different sections; the alley problem. 3-4 p., Municipal Journal, July 5. 10 cts.

Excess Condemnation. Assessments. Former more equitable to property owners and city. Paper before Conference on City Planning. By Lawson Purdy. 2-3 p., Municipal Journal, June 28. 10 cts.

Housing Awakening, The. Discoverers of Columbus. By O. W. Davis. Illustrated, 5 pp., Survey, July 1. 25 cts.

The Housing Awakening. Foreign invasion of a New England Town. New Haven. By E. W. Rogers. Illustrated, 8 pp., Survey, June 3. 25 cts.

Insurance and Home Building. By L. K. Frankel. 13 pp., Survey, June 3. 25 cts.

Playgrounds, Somerville. Illustrated. 2-3 p., Municipal Journal, June 28. 10 cts.

Play as an Antidote to Civilization. Paper before Fifth Annual Meeting of the Playground and Recreation Association of America. By Jos. Lee. 17 pp., Playground, July. 25 cts.

Tendencies and Developments in the Field of Public Recreation. By H. S. Braucher. 16 pp., Playground, July. 25 cts.

Baths of St. Paul, Free Public. By L. C. Morton. 5 pp., American City, June. 10 cts.

Convenience Stations. Cost and Construction of Public. By K. O. Nelson. Illustrated, 6 pp., New Boston, June. 10 cts.

Abattoir in Amsterdam, Municipal. 1-4 p., Municipal Journal, June 21. 10 cts.

Municipal House. Proposal for London headquarters for organizations and societies to embrace separate offices and a common library. 1 p., Municipal Journal, London, June 10. 15 cts.

Smoke Abatement in Boston. Result of six months' enforcement; new law practicable; simple standard of measurement and co-operation of plant owners. 3-4 p., Municipal Journal, June 21. 10 cts.



Scientific Smoke Prevention in Boston. 1 p., Engineering Record, June 17. 10 cts.  
 Billboard Decision, Missouri. 1-2 p., Municipal Journal, June 21. 10 cts.  
 Statistics, Massachusetts Bureau of. 1-2 p., Municipal Journal, July 5. 10 cts.  
 Refuse, Fertilizer from City. 1-2 p., Municipal Journal, June 28. 10 cts.

Contracts, Court Decision as to the Enforcement of the Time Penalty in Engineering. 2 pp., Bulletin General Contractors' Association, June. 10 cts.

Subway Construction, Steel Forms in. Illustrated, 4 pp., Cement Age, June. 15 cts.

Interesting Features in Connection with Brooklyn Subway Construction. Illustrated, 21-2 pp., Concrete, June. 15 cts.

Trolley Poles, Testing and Manufacture of Reinforced Concrete. Illustrated, 1 p., Engineering Record, June 24. 10 cts.

Tunnel of the United Railways Co., Cornelius Gap, Near Portland, Ore. By W. P. Hardesty. Illustrated, 21-3 pp., Engineering News, June 29. 15 cts.

Pipes and Wires Crossing Railways, Rules for. General order of the Board of Railway Commissioners for Canada. 1 p., Canadian Engineer, June 15. 15 cts.

Electrification of the Steam Railroad in the Boston Metropolitan District, Discussion on the. Paper before Boston Society of Engineers. By G. F. Swain. Illustrated, 19 pp., Journal of the Association of Engineering Societies, May. 30 cts.

Building a Reinforced Concrete Pipeline in Alkali Soil. From paper before Idaho Society of Engineers. By Z. N. Vaughn. 1 p., Engineering News, June 29. 15 cts.

Public Works. Woolwich and Some of the Works Completed Since 1905. Paper before Institution of Municipal and County Engineers. By J. R. Dixon. 3 pp., Contract Journal, May 31. 40 cts.

The Modernization of an Old Historic Town, Petersburg, Pa. By W. M. Martin. Illustrated, 4 pp., American City, June. 10 cts.

Photography for the Engineer. By Emile Low. 1 p., Engineering News, June 29. 15 cts.

Engineering as an Economic Science. From paper before American Society of Engineering Contractors. By R. T. Dana. 2 pp., Engineering-Contracting, June 28. 10 cts.

Professional Code and Schedule of Fees for Consulting Engineers. 1-2 p., Engineering News, June 29. 15 cts.

Explosives, Nature and Characteristic Components of "Permissible." Paper before West Virginia Coal Mining Institute. By Clarence Hall. 1 1-2 pp., Engineering News, June 29. 15 cts. 2 pp., Engineering Record, July 1. 10 cts.

New Work, Some Factors in Obtaining. By D. J. Hauer. 2 pp., Contractor, July 1. 20 cts.

Labor Laws, Present and Proposed. 8 pp., Bulletin General Contractors' Association, June. 10 cts.

Contract and Day Labor Work at New Orleans. 1 p., Engineering-Contracting, June 14. 10 cts.

Tables for Use in Determining Earth Pressure on Retaining Walls. By W. E. Weston. 2 pp., Engineering News, June 22. 15 cts.

Trench Excavation, Methods and Costs of. Paper before Western Society of Engineers. By Victor Windett. Illustrated, 4 pp., Engineering-Contracting, June 14. 10 cts.

Motor Trucks on Construction Work and for Haulage Purposes, Use of. Illustrated, 6 pp., Engineering News, June 22. 15 cts.

Some Engineering and Economic Results of the Commercial Motor Vehicle. 1 1-2 pp., Engineering News, June 22. 15 cts.

Models, Construction of. Buildings cut from wood blocks or of cardboard; sponges, wool shavings and felt to represent trees, shrubs and lawns; cigar ashes, glass beads and wire used. Reproducing surface topography. Illustrated, 2 pp., Municipal Journal, June 28. 10 cts.

Boiler Plants, Auxiliary Oil Firing in Steam. Paper before National Electric Light Association. By H. A. Wagner. Illustrated, 1-3 p., Engineering News, June 22. 15 cts.

## BOOK REVIEWS

**National Municipal League Proceedings.** Octavo, 569 pages, cloth. Published by the League; Clinton Rogers Woodruff, Secretary and Editor, Philadelphia. Price, \$4.

This contains the papers read at the sixteenth annual convention of the league, held at Buffalo last winter. As usual, it contains papers by enthusiastic workers for and experts in good government. These are as follows: Patriotism in Municipal Affairs, by Charles J. Bonaparte. Conservation in Municipalities, by Wm. Dudley Foulke. The New Municipal Idea, by Clinton Rogers Woodruff. The Sliding Scale Method of Regulating Public Service Corporations, by Edgar N. Wrigginton. Is a Rational Basis Possible for Telephone Rates? by Dugald C. Jackson. The Street Railway Situation in Detroit, by Paul Leake. The Minneapolis Gas Settlement, by Stiles P. Jones. Kansas City Franchise Fight, by James W. S. Peters. Elements of a Conservative Franchise Policy, by Delos F. Wilcox. The Graft at Work in American Cities, by Harold J. Howland. The correlation of Financial and Physical Statistics of

Cities, by William F. Willoughby. Budgets and Balance Sheets, by Harvey S. Chase. The Standardizing of Municipal Accounts and Statistics in Massachusetts, by Charles F. Gettamy. A Comparison of Commission Forms of Governments to Date, by Ernest S. Bradford. Police Administration, by Leonhard Felix Fuld. An Effective Civil Service Law in Cities, by Eliot H. Goodwin. The Operation of Woman's Suffrage and Its Local Effect, by Miss Mary Winsor. Present Status of Direct Nominations, by Louis M. Greeley. The Principle of Wieldy Districts, by Richard S. Childs. The Unearned Increment in Municipalities, by John Martin. School Extension Report, by Edward J. Ward. The Education of Foreigners in American Citizenship, by Miss Grace Abbott. The Library as a Civic Factor, by Samuel H. Ranck. The Liquor Situation in Ohio, by Augustus R. Hatton. Some Political Phases of the Liquor Problem in Chicago, by Prof. F. D. Bramhall. Draft of a Civil Service Law for Cities, by Elliot H. Goodwin.

**Practical Applied Electricity.** By David Penn Moreton. Illustrated; 414 pages, 4½ by 7¼ inches. Reilly & Britton Company, Chicago. Price, \$2 net.

The sub-title of this book is "A Book in Plain English for the Practical Man. Theory, Practical Applications and Examples." The author is associate professor of electrical engineering at Armour Institute of Technology, and this book is based to a certain extent upon a series of lectures given to his evening classes. Although the book is published in a small pocket size, and a certain number are bound in flexible leather with protecting flap and designated a "Workman's Edition," it is essentially a text book, and assumes no prior information concerning electricity. The explanations of the fundamental principles are very clearly and concisely put; and altogether the general ideas of the science are explained more clearly than in any book which we have heretofore examined. As the elementary principles are comprehensively covered, the size of the work does not permit the more advanced theories and purposes to be more than hinted at. For a beginner, however, we believe the book will be found as useful certainly as any other published.

## INDUSTRIAL NEWS

**Cast Iron Pipe**—Chicago: Several large municipal orders have been placed and others are pending. Quotations: 4-inch, \$25.50; 6 to 12-inch, \$24.50; 16-inch and up, \$24. Birmingham: Tonnage disposed of in the aggregate is fairly satisfactory. Business on order books will warrant a steady output for some months. Prices are probably weaker on account of dullness in pig iron market. Quotations: 4 to 6-inch, \$22; 8 to 12-inch, \$21; over 12-inch, average, \$20. New York: General demand continues quiet. Quotations: 6-inch, \$21 to \$22.

**Lead**—Lead continues decidedly firm, but there is very little demand for the metal. Outside sellers are meeting the price made by the leading interest which is 4.50c. New York and 4.35c. St. Louis.

**Tar**—The Barrett Manufacturing Company is doubling the capacity of its Louisville, Ky., plant, and is installing stills, condensers, boilers, etc. Most of the equipment was moved from the Dayton plant of the company. The installation is being done by the American Boiler Works, Louisville.

**Tobin Bronze**—The Ansonia Brass & Copper Company, 99 John street, New York, manufacturers of brass and copper sheets, rods, bars, tubes and wire, have issued a pamphlet describing the properties of Tobin Bronze. Tobin Bronze is a combination of copper with other metals. Its tensile and transverse strength is the same as ordinary mild steel and it is adapted for a variety of purposes where a strong non-corrosive metal is required.

**Pulsometer Pump**—The Pulsometer Steam Pump Company, 17 Battery Place, New York, N. Y., are sending out to prospective customers a little blue print showing by curves the weights of single acting, light duty contractors' pumps as compared with the Pulsometer. The simple single cylinder pumps weigh about three times as much as the Pulsometer of same capacity, the disparity increasing in the larger sizes. It is also stated that the Pulsometer will handle water containing up to 40 per cent solid matter such as sand or mud.

**Industrial Catalogues**—The Free Public Library of Newark, N. J., is making a collection of the business literature of Newark manufacturers, and has established a business branch at 18 Clinton street, in the center of the city, where catalogues and other printed matter of this character are kept on file. A carefully arranged double index is kept of names of firms and articles manufactured, and the library makes it a point to answer inquiries by letter or telephone, giving probable buyers full information about the makers of products for which they inquire.

**Fire Alarm**—The installation of the new automatic fire-alarm system of the city of Louisville, Ky., has begun and the work will require several months. The equipment, which includes a switchboard and other central office apparatus, is to be installed principally by the James Clark, Jr., Electrical Company, Louisville, and the Star Electric Company, Binghamton, N. Y.

**Playground Apparatus**—The Fred Medart Manufacturing Company, St. Louis, Mo., which makes a specialty of gymnasium and playground apparatus, is extending its plant and has installed a number of new machine tools.

**Ardmore Asphalt**—The asphalt deposits of the Ardmore District, Oklahoma, are described by a writer in the *Manufacturers' Record* as follows: The first pit opened in the district appeared to be 150 yards in width and possibly double that number of yards in length. In depth the excavation looked to be about 200 feet. Work ceased in this mine simply because another pit was opened on the same lead, about a quarter of a mile distant, with improved and more effective machinery. This particular lead or bed has been developed for about one mile and a half in length, its average width being possibly 100 yards. The vein, however, has been surveyed and tested for capacity over a length of 8 miles. Its depth is only a matter of conjecture. Estimating from the amount of asphalt that has been taken out of this one bed, there yet remains enough to pave the streets of all the cities of the United States, together with those of all the cities of Europe and the Continent, and then some. It is unnecessary to say that this particular asphalt deposit is the main inducement to the building of the Ardmore, Duncan & Lawton Railroad. With the completion of that road Ardmore rock asphalt will find its way to all cities of the United States. Carter County is unusually blessed with natural resources. Besides asphalt it has gas, oil, silica, cement, rock, sand, coal and plenty of good pure water.

**Flume for Sewer Outlet**—After a thorough inspection of the McGinnis galvanized iron flume, being used by the Government Reclamation Service in work in Idaho, City Engineer G. F. McGonagle has returned to Salt Lake declaring that this flume is the best suited for use in the sewer outlet canal that is to be built from the present sewer farm to Great Salt Lake. Mr. McGonagle went over several miles of the flume in use on the Payette project in Idaho and speaks most highly of the convenience and serviceableness of the flume. He says it is the most easily constructed and repaired flume he has ever seen, and is so designed and built that if it is used in the outlet sewer it will be something that can be counted upon as being permanent.

**Cement Plant**—The Knickerbocker Portland Cement Company, 1 Madison avenue, New York, began operations on its new plant at Hudson, N. Y., in June, establishing, by the way, a record in the construction of a 3000-barrel plant. Ground was broken for the plant last August. The company owns a tract of 600 acres adjoining Hudson having both limestone and shale on the property. The wet process of mixing the ground materials coming from the Griffin mills is employed. The power plant consists of four 600 h.p. water tube boilers and two 2000 k.w. Curtis steam turbines with direct-connected generators. Every machine in the plant is driven by an individual motor. S. H. Bassett, president of the company, and M. H. Hammond, the general superintendent, formerly held corresponding positions with the Iola Portland Cement Company, Iola, Kan.

**Concrete Reinforcement**—The Unit Construction Company, St. Louis, Mo., has purchased an 11-acre site on the western edge of the city and will establish a \$100,000 plant for the manufacture of concrete reinforcement metals and the casting of concrete forms.

**Road Oil Tests**—At a recent meeting of the Board of Freeholders, Passaic County, N. J., Schroeder & Frank, the consulting chemists of Passaic, reported on the analysis of the samples of various road oils submitted to them by County Engineer Ferguson. The analysis was made at the request of the Society for the Prevention of Cruelty to Animals, complaints having been received by the latter that the road oil causes ulcerations on horses' feet.

According to the report of the chemists the Sanitary road oil contains properties which are likely to have corrosive action on living tissues, and that it also has a large percentage of carbon. The letter, which was filed, was as follows:

Passaic, N. J., June 23, 1911.

Mr. Ferguson:

Dear Sir:—The samples of road oil submitted on the 19th instant show the following results:

The samples marked "Sanitary Road Oil" is a coal tar product containing phenolic bodies, which introduce the possibility of corrosive action on living tissues. The large percentage of free carbon, 20-25 per cent., present detracts from the value of the material as a dust-laying compound.

The sample marked "Texan Road Oil" on examination showed the presence of small quantities of water, but a good grade of mineral oil of a high boiling point. The oil showed neutral reaction.

The sample marked "Standard Asphalt Road Oil" on examination showed no water and likewise a good grade of mineral oil of a high point and no acid reaction. The amount of oil in both these samples (Texan and Standard Road Oil) is about the same, yielding over 85 per cent.

The sample of "Dustoline" is a straight mineral oil.

Very sincerely yours,

SCHROEDER & FUNK.

The Sanitary oil has been spread on Jackson street and Haledon avenue. It was put down by Theodore Bunker, an engineer for the Public Service Corporation. None of the contracts given out were for oil of this brand.

**Viaduct**—The Gilbert avenue viaduct, Cincinnati, O., soon to be constructed, will extend from the intersection of East Court street and Gilbert avenue in line with the present Gilbert avenue to Eggleston avenue and East Eighth street, a distance of 692.56 feet. From thence making an angle of forty-seven degrees (47°) with the first described portion. The viaduct will extend parallel to and south of East Eighth street to Broadway, a distance of 486.31 feet.

The viaduct will have a total width of eighty (80) feet with roadway fifty-eight (58) feet wide and two sidewalks each eleven (11) feet wide. There will be short earth work approaches contained between reinforced concrete retaining walls at each end. The viaduct proper with the exception of the span over Eggleston avenue will be constructed of reinforced concrete of beam and girder construction supported by four (4) rows of columns resting on reinforced concrete piers which will be constructed on concrete piles. The spans in general will be thirty (30) feet long. The span over Eggleston avenue will consist of six (6) plate girders incased in concrete and resting on reinforced concrete abutments, supported by concrete piles. The span over Eggleston avenue will be one hundred (100) feet.

**Chemical Engines**—Wilmington is to have a chemical engine building plant. The Wilmington Brass Company, with outside interests, have taken over the large plant at Eleventh and Bennett streets, now occupied by the Charles E. Hires Company, and will begin the new work there in August with a largely increased force of mechanics. James J. English, president of the Brass Company, will be president of

the new company. John J. Lally also will be interested. The outside interests will include Pennsylvanians who are now interested in the building of fire engines. Mr. Lally has patents on the Lally couple now in almost universal use among fire companies. The chemical engines will be made with horsepower and motorpower trucks and will be equipped with all modern appliances. It is the intention of the brass company to move from their present headquarters to the new building in August and, while no improvements will be made until the work is fairly under way, the firm contemplates the doubling of its force.

**Contract to High Bidder**—The T. A. Gillespie Company, Pittsburgh, Pa., has been awarded by the Board of Water Supply of New York City a contract for the construction of a portion of the Hudson River division of the Catskill aqueduct in the towns of Cornwall and Fishkill. Its bid was \$1,649,020 and was the third lowest, but, by reason of the importance of the undertaking, the board decided to make the award to the Gillespie Company because of its facilities, experience and resources. The steel requirements of the complete portion of the Catskill aqueduct from Yonkers, N. Y., to Brooklyn, amounting to about 6,000 tons, will be rolled by the Carnegie Steel Company, Pittsburgh.

**Foos Kerosene Engine Economy**—In an article now in preparation the Foos Gas Engine Company, Springfield, Ohio, will give data collected from actual power-plant experience with its engines operating on petroleum and distillates, showing remarkable reliability and economy. Comparison is made between the Foos engine using kerosene at 5 cents a gallon and a gasoline engine using 12 cent fuel. A 10-hour day with a 25 h.p. oil engine at full load shows a fuel cost of but \$1.55. A gasoline engine under the most favorable conditions, it is stated, would use 31¼ gallons of fuel, which, at 12 cents, would cost \$3.75. A total saving for 300 working days would thus give the oil engine a lead of \$660 a year. As a matter of fact, the advantage in favor of the oil engine is shown to be even greater. Kerosene can be bought as low as 4 cents and in many fields oils are available at 2¼ cents.

**Garbage Furnace**—Massillon, O., may get a garbage disposal plant in the near future. The manufacturers of the McGuire Sanitary Furnace, at Hobart, Okla., have offered to build one of their garbage incinerating furnaces there and demonstrate for 10 days with the understanding that if it is a failure they remove it but if a success that the city buy it for \$2,500. The company claims to have its furnaces in use in many Western cities, among which is Oklahoma City, Okla., which has purchased ten.

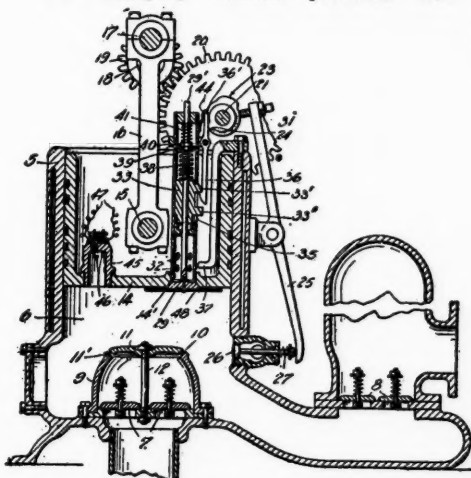
An agent for the furnace called upon Mayor Remley and Service Director Pietzcker recently and explained his proposition. Both officials expressed themselves as pleased with the plans and specifications. The manufacturers of the McGuire furnace claim that it will reduce to ashes, without making an odor, garbage, night soil, dead animals and all refuse matter that might endanger the health of a community. The ashes, it is claimed, may be sold as fertilizer. The manufacturers claim that at a recent test, one of the furnaces reduced to ashes the carcass of a horse in two hours' time at a cost of 50 cents.



## PATENT CLAIMS

996,565. Internal Combustion Pumping Engine. Alwyn L. Croxton, Bremerton, Wash. Serial No. 519,993.

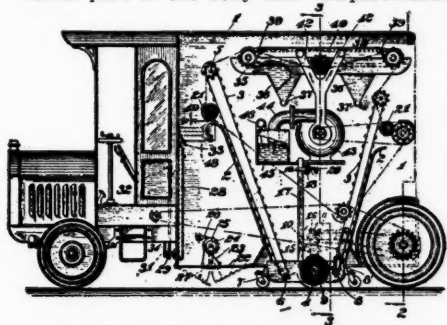
In a pumping engine wherein an explosive power agent is employed between a body of liquid and a movable piston, the combination with the cylinder, a piston therein, a pumping chamber provided with



valved openings for the intake and discharge of liquid therefrom, a valve for the admission of explosive gas into the pumping chamber, an exhaust valve carried by the piston to control the discharge of the spent explosive gases from the pumping chamber, and means for opening and closing said valve.

996,230. Street Sweeper. Eustace Senior Estlin, Winnipeg, Manitoba, Canada. Serial No. 564,623.

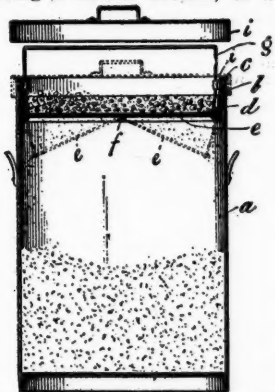
A street sweeper comprising a box-like body provided with a transverse opening, upwardly inclined walls leading from the edges of the opening and dividing the lower part of the body into compartments,



a rotary brush suspended from the box-like body and rotating within the opening in the bottom, means for rotating the brush, and conveyers mounted above the aforesaid inclined walls and adapted to receive sweepings from said brush.

996,774. APPLIANCE FOR ASH PAILS OR CANS. Jacob Kohlmann, New York, N. Y. Serial No. 622,126.

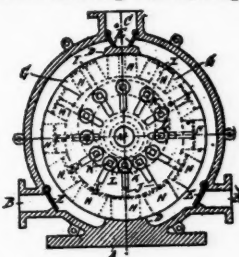
In an article of manufacture, the combination with an ash can having a cover, of an appliance, consisting of a receptacle adapted to removably fit in said ash can, and having a double bottom, of which one



is sieve-shaped and the other solid and tiltable, and means whereby the said tiltable bottom will be tilted into open position by the cover of the can, when put on to the latter.

996,543. Rotary Reversible Plunger Pump. William John Vincent, Powis, and Frederick James Hancox, Penarth, England. Serial No. 493,271.

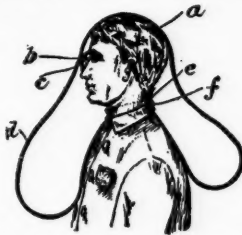
A pump comprising in combination, a cylindrical casing having a single outlet opening, non-return flap valves adjacent said opening and arranged to open in opposite direction with respect to each other, said casing having recessed chambers extending in opposite direction from said valves and extending completely about the exterior of said casing, an abutment serving as a drum bearing and having stops for



said flap valves, a drum bearing abutment diametrically opposed opposite said first named abutment and disposed at the terminals of said recessed chambers, inlets on opposite sides of said last named abutment, non-return flap valves for said inlets, a shaft in said casing, a rotary drum on said shaft bearing against said abutments, said drum having a plurality of radially disposed openings therein communicating with said chambers, plunger pistons in said openings for receiving and expelling fluid wholly with their outer faces, said casings being provided with cams, rods connected with said plunger pistons and extending to said drum into engagement with said cams whereby the plunger pistons are actuated upon rotation of said drums.

996,739. FIREMAN'S HOOD. Frederick W. Vinton, Weehawken, N. J. Serial No. 406,205.

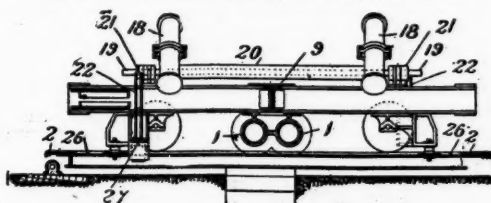
As a new article of manufacture, a fireman's hood consisting of a sack of flexible material collapsible and foldable in its entirety whereby it may be conveniently carried about the person of the user for emergency use, the upper part of said sack having eye openings therein provided with transparent closure means and being reduced to fit the upper part of the head, and the lower part thereof being materially enlarged relative to said upper part whereby said lower part may be extended under atmospheric pressure to form an air reser-



voir for the storage of a considerable volume of air under normal atmospheric pressure, the bottom of said lower part having an opening therein adapted to be passed over the head of the user, the portion of said sack about said bottom opening being gathered or shirred to permit the extension and contraction of said opening, and an elastic band mounted within said gathered or shirred portion whereby said opening may be extended to charge the reservoir and apply the hood and will be automatically closed about the neck of the wearer to make the sack substantially airtight when applied.

997,058. AUTOMATIC OR POWER-DRIVEN DISTRIBUTER FOR FILTER-BEDS AND THE LIKE. Frederic George Sison Ham, London, England. Serial No. 585,823.

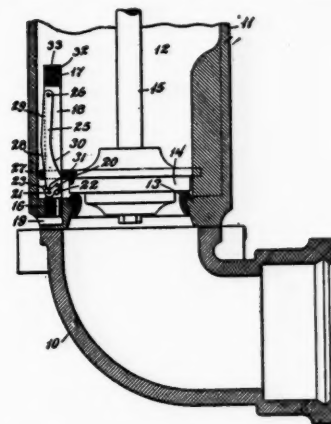
In a distributor for filter beds and the like, the combination with a filter bed, of



feed tube means disposed over the bed, and a non-conducting covering for the feed tube means, a space being formed between the feed tube means and covering.

997,192. VALVE MECHANISM FOR STREET-HYDRANTS. Claude L. Howes, Boston, Mass. Serial No. 377,140. Renewed. Serial No. 603,403.

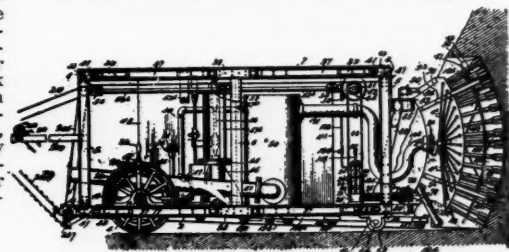
A street hydrant comprising a casing provided with an internal main valve and seat, and a waste port communicating with



the interior of said casing, a waste valve for said port, an actuator arranged to open and close said waste valve, and means connected with the main valve for operating said actuator, said waste valve and actuator being free to move independently of the main valve when the latter is unseated.

996,842. TUNNELING-MACHINE. George A. Fowler, Denver, Colo. Serial No. 497,775.

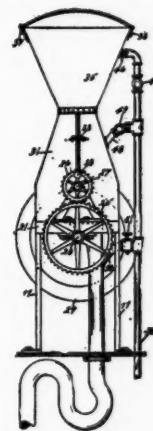
In a tunneling machine, the combination of a frame provided with wheels at its front end, and with bearing boxes at its rear end, with eccentrics rotatably mounted in said boxes, an axle having the rear wheels mounted therein, said axle being rotatably



journalled in said eccentrics, semi-circular bands surrounding the wheels and provided with apertures; yoke levers which straddle said bands and are secured at their ends to the eccentrics; removable pins for adjustably locking the levers to the bands; and means including gearing for rotating said rear wheels to move said frame along a tunnel.

996,958. GARBAGE-PULVERIZER FOR SEWERS. John G. Wallick, Indianapolis, Ind. Serial No. 512,546.

The combination of a machine provided with a hopper for receiving garbage, means for pulverizing the garbage, a pipe leading from the discharge of said machine to the sewer and provided with a gooseneck bend therein, means for introducing water under



pressure into the sewer pipe below the pulverizing machine, and means for introducing water under pressure into the pulverizing machine.

## THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Concrete Work—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards.

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

## BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO.
<b>STREET IMPROVEMENTS</b>				
Ohio.....	Youngstown.....	July 14, noon.....	Grading, draining, culverting, macadamizing and otherwise improving several roads in Liberty township.....	John H. Howells, Twp. Clerk.
North Carolina.....	Wilmington.....	July 15, noon.....	Constr. 24,000 sq. yds. paving, curbing and guttering.....	F. F. Pillett, City Engineer.
Michigan.....	Luther.....	July 15, 4 p.m.....	Constr. 11½ miles gravel road in Newkirk and Ellsworth twps.....	Norman Buckner, Twp. Clerk.
Ohio.....	Greenville.....	July 15.....	Constructing the Althoff road in Patterson township.....	Bd. County Comrs.
Texas.....	Bonham.....	July 15.....	Constr. about 4,538 ft. concrete curb; 22,645 sq. yds. paving; 4,000 sq. yds. grading; 670 ft. storm sewers.....	T. W. Ragsdale, Mayor.
Ohio.....	Dayton.....	July 15, noon.....	Grading, improving and paving sidewalks, several streets.....	J. C. Ely, Dir. Pub. Service.
Indiana.....	Terre Haute.....	July 15, 11 a.m.....	Graveling about two miles of road.....	N. G. Wallace, County Auditor.
Sask., Can.....	Whitewood.....	July 15.....	Constructing 66,000 sq. ft. cement sidewalks.....	C. S. Barker, Secy.
Michigan.....	Newkirk.....	July 15, 4 p.m.....	Constructing 11½ miles class B gravel road.....	Twp. Bds. Newkirk and Ellsworth.
Minnesota.....	Mankato.....	July 17, 10 a.m.....	Constructing curb, gutters and sidewalks.....	City Clerk.
Massachusetts.....	Springfield.....	July 17, noon.....	Macadamizing roadway and building concrete wall.....	C. M. Slocum, City Engineer.
New Jersey.....	Westfield.....	July 17, 8:15 p.m.....	Constructing 5,300 lin. ft. concrete sidewalk; constructing 5,500 sq. yds. bit. macadam, 4,500 lin. ft. underdrains, 270 lin. ft. culvert.....	Charles Clark, Town Clerk.
Indiana.....	Marion.....	July 17, 2 p.m.....	Constructing one gravel and three stone roads.....	A. Y. Stout, County Auditor.
Colorado.....	Boulder.....	July 17.....	Constructing macadam pavement. Cost \$12,000.....	F. R. Dugan, City Engineer.
Missouri.....	St. Louis.....	July 17.....	Grading about 115,000 cu. yds.....	Pitzman Company, 615 Chestnut St.
Ohio.....	Marysville.....	July 18.....	Constr. road in York Twp., one in Washington Twp.....	Bd. County Comrs.
Ohio.....	Newton Falls.....	July 18.....	Paving various streets.....	Wade Gardner, City Clerk.
New Jersey.....	Camden.....	July 18, 8 p.m.....	Paving several streets with asphalt streets and highways.....	Edward Francis, Chm. Com.
New Jersey.....	Camden.....	July 19, 11 a.m.....	Resurfacing turnpike.....	John Prentice, Dir. Bd. Freeholders.
New York.....	Binghamton.....	July 19.....	Constr. a creosoted resinate wood block; also vit. brick pavement on Main street.....	De Witt C. Herrick, City Clerk.
Wisconsin.....	Galesville.....	July 20, 8 p.m.....	Paving market square.....	G. Holmberg, City Clerk.
Tennessee.....	Johnson City.....	July 20, 6 p.m.....	Constr. 23,000 sq. yds. paving, including bridges, sewers, storm water drain, concrete curb and gutter, consisting of about 5,000 cu. yds. excavation; 23,000 sq. yds. paving; 12,000 lin. ft. curb and gutter.....	W. M. Dunlap, City Comr.
Ohio.....	Marysville.....	July 20.....	Constructing Schmeltzer Road.....	County Commissioners.
Indiana.....	Decatur.....	July 21, 10 a.m.....	Constr. macadamized roads in Allen, Root and Adams twps.....	H. S. Michaud, County Auditor.
Florida.....	Jacksonville.....	July 21.....	Constructing about a mile of county road.....	County Engineer.
Wisconsin.....	Racine.....	July 22.....	Paving Owen Avenue.....	Bd. Pub. Wks.
Minnesota.....	Minneapolis.....	July 24.....	Constructing Superior Boulevard.....	C. M. E. Carson, County Comr.
Ohio.....	Toledo.....	July 25, 11 a.m.....	Repairing Jerusalem stone road.....	Chas. J. Sanzenbacher, Co. Aud.
New York.....	Syracuse.....	July 25, 2 p.m.....	Constructing 12 miles new highways.....	F. E. Bogardus, Supt. Highways.
Ohio.....	Columbus.....	July 26.....	Constructing sidewalk on bridge.....	County Commissioners.
Florida.....	Key West.....	July 26, 7:30 p.m.....	Constructing 67,857 sq. yds. wood, asphalt, brick or asphalt macadam; also 18,395 lin. ft. stone curbing.....	W. R. Proctor, Chm. Bd. Pub. Wks.
Ohio.....	Cleveland.....	July 26, 11 a.m.....	Grading road.....	County Commissioners.
Ohio.....	Bowling Green.....	July 31, 1 p.m.....	Macadamizing highway.....	F. W. Toan, Co. Auditor.
New Jersey.....	Woodstown.....	July 31.....	Paving half mile of street.....	E. S. Fogg, Mayor.
Louisiana.....	New Orleans.....	Aug. 1.....	Constructing highways.....	Hwy. Dept. State Engineers.
Ohio.....	Bowerstown.....	Aug. 5, noon.....	Paving three streets with brick.....	W. F. Utterback, Clerk.
Ohio.....	Marysville.....	Aug. 5.....	Constructing two roads.....	County Commissioners.
<b>SEWERAGE</b>				
Indiana.....	Evansville.....	July 15, 10 a.m.....	Constructing 12-in. pipe sewer.....	S. A. Bartholome.
Oklahoma.....	Marietta.....	July 15.....	Construct. san. sewer system. O'Neill Engr. Co., Dallas, Tex., Engineer.....	City Clerk.
Wisconsin.....	Rhineland.....	July 17, 2 p.m.....	Constr. about 10,183 sq. yds. macadam pavement, combined cement curb and gutter.....	Geo. C. Jewell, Chm. Bd. Pub. Wks.
Ohio.....	Columbus.....	July 17.....	Constructing sewers in alleys.....	H. S. Holton, Dir. Pub. Service.
New Jersey.....	Summit.....	July 18, 8:30 p.m.....	Constructing 8,500 lin. ft. 8 to 10 in. pipe sewer.....	J. E. Rowe, City Clerk.
Ohio.....	Cleveland Hgts.....	July 25, noon.....	Constr. sewers in various roads.....	H. H. Canfield, Village Clerk.
Ohio.....	Columbus.....	July 26, noon.....	Furn. 1,874 lin. ft. 24-in. second class clay pipe and specials.....	F. M. Sayre, County Auditor.
Georgia.....	Thomaston.....	Aug. 1, 2 p.m.....	Constructing sewer system.....	C. Worrill, Mayor.
Pennsylvania.....	Ligonier.....	Aug. 1.....	Building sewage disposal plant, including sedimentation tank, sprinkling filter, sludge bed and pumping station. F. H. Shaw, Lancaster, Engineer.....	L. F. Brandt, Boro. Clerk.
Tennessee.....	Nashville.....	Aug 10, 3 p.m.....	Constr. about 7 miles of circular brick trunk sewers, ranging in size from 30 to 111-in. in diameter.....	Wm. W. Southgate, City Engr.
<b>WATER SUPPLY</b>				
Illinois.....	Flora.....	July 14.....	Constructing water works system.....	W. A. Karr, Pres. Bd. Loc. Imp.
New York.....	New York.....	July 14, 2 p.m.....	Furnishing and laying water mains borough of Queens also hauling and laying mains, Bronx.....	Henry S. Thompson, Com. W. Sup.
New York.....	Holland Patent.....	July 14, 7 p.m.....	Laying about 2,300 ft. 4 and 8 in. pipe; removing old pipe.....	E. W. Jones, Village Clerk.
Ohio.....	Andover.....	July 14, noon.....	Furnishing and directing triplex pumping engine direct connected to gasoline engine; capacity 250 gals. against 150 ft. hd.....	Board Public Affairs.
Iowa.....	Cherokee.....	July 14, 8 p.m.....	Constructing 200,000 gal. reinforced concrete reservoir.....	City Clerk.
Virginia.....	Richmond.....	July 14, 4 p.m.....	Furnishing 2 centrifugal pumps, water meters, etc.....	E. E. Davis, Supt. Water Works.
Oklahoma.....	Waynoka.....	July 15.....	Constructing water works and lighting plant.....	City Clerk.
Georgia.....	Macon.....	July 16, noon.....	Digging trenches and laying 5,003 ft. 12-in., 3,140 ft. 8-in., 5,363 ft. 6-in. pipe with hydrants, valves and spec. castings.....	John T. Moore, Mayor.
Georgia.....	Americus.....	July 17.....	Constr. a reinf. conc. reservoir 60 ft. in diam., 13 ft. deep.....	T. N. Hawks, City Clerk.
Ohio.....	Columbus.....	July 17, noon.....	Laying cast iron force mains and appurtenances, consisting of about 3,800 lin. ft. 36-in. pipe; 30 lin. ft. 24-in.; 60 lin. ft. 16-in. and 12-in. pipe; 70 lin. ft. 6-in., removing and relaying sidewalks, pavements, curb, etc.....	H. S. Holton, Dir. Pub. Service.
Illinois.....	Springfield.....	July 17, 10 a.m.....	Furnishing and installing 1,000,000 gal. pump.....	Water Works Commission.
Ohio.....	Cleveland.....	July 18, noon.....	Furnishing pig lead.....	A. B. Lea, Dir. Pub. Serv.
South Dakota.....	Ipswich.....	July 18.....	Constructing water works, cost \$23,000.....	J. W. Arnold, City Engineer.
Wisconsin.....	New Lisbon.....	July 19, 1:30 p.m.....	Constr. water works plant and electric light plant complete.....	W. S. Sargent, City Clerk.
California.....	Los Angeles.....	July 24, 2 p.m.....	Granting franchise to lay and maintain water pipes for period of 40 years in certain portions of the county.....	H. J. Lelande, County Clerk.
Ontario, Can.....	Burnaby.....	July 24, 5 p.m.....	Furn. about 138 sluice and special valves from 3 to 24-in.....	W. Griffiths, Clk. Mun. Council.
Ohio.....	Cleveland Hgts.....	July 25, noon.....	Constr. 10-in. water main in portion of Taylor road; 6-in. water mains Glen Road and Crest Road.....	H. H. Canfield, Village Clerk.
Illinois.....	Herrin.....	July 26, 1 p.m.....	Constr. reser., steam pump, plant tower and tank & 2 miles 12-in. pipe.....	C. E. Anderson, Mayor.
Tennessee.....	McKenzie.....	July 27, 2 p.m.....	Constructing water works and electric plant.....	Mayor.
Georgia.....	Thomaston.....	Aug. 1, 2 p.m.....	Constructing water works.....	C. Worrill, Mayor.



## BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO.
<b>BRIDGES</b>				
New York	Massena	July 15, noon	Building a bridge	B. S. O'Neill.
Pennsylvania	Lock Haven	July 17, 1 p.m.	Constructing bridge over West Branch	County Commissioners.
Maryland	Baltimore	July 17, noon	Constructing drawbridge 640 ft. long	J. M. Tucker, Chm. St. Rd. Com.
Minnesota	Marshall	July 18	Constructing 60 ft. span bridge	County Commissioners.
Ohio	Cincinnati	July 19	Constr. superstructure and miscellaneous work in connection with Gilbert Ave. viaduct	John J. Wenner, Clk. Dept. Pub. Serv.
North Dakota	Fargo	July 19, noon	Constructing small wood and concrete bridges	A. Leech, County Auditor.
Ohio	Cleveland	July 19, 11 a.m.	Bridge Extension, South Woodland road	John F. Goldenbogen, Clk. Bd. C. C.
Pennsylvania	Beaver	July 20, noon	Constructing steel bridge 75 ft. long	County Commissioner.
Illinois	Ottawa	July 20, 1 p.m.	Constructing 30 ft. concrete bridge	A. E. Bach, County Clerk.
Arkansas	De Witt	July 22, 10 a.m.	Constr. eleven bridges, concrete abutments and footings in Arkansas County	I. C. Gibson, County Clerk.
Pennsylvania	Pittsburg	July 23, noon	Constructing 75 ft. steel truss	R. J. Cunningham, County Comp.
New York	Albany	July 25, noon	Reconstr. bridge over Erie Canal near Canajoharie; reconstr. bridge over Hudson River at Schuylerville	Chas. E. Treman, Supt. Pub. Wks.
Indiana	South Bend	July 26	Constr. a \$65,000 reinforced concrete bridge; and a \$50,000 plate girder bridge at Mishawaka	W. S. Moore, Engineer. County Comrs.
Indiana	Evansville	July 27, 10 a.m.	Constructing reinforced concrete bridge	C. E. Baird, County Auditor.
Ohio	Cincinnati	July 28	Constructing bridges, culverts and approaches	Fred. Driebs, Clerk.
Pennsylvania	Pittsburg	July 29	Constructing 75 ft. span bridge	R. J. Cunningham, Comptroller.
<b>LIGHTING AND POWER</b>				
Missouri	Kansas City	July 15	Furnishing direct current turbo generator	City Purchasing Agent.
Sask., Can.	Prince Albert	July 15	Furnishing electrical equipment for power station	C. O. Davidson, Secy. Treas.
Missouri	Monett	July 18	Furnishing machinery for electric lighting plant and system	P. Short, Mayor.
Wisconsin	New Lisbon	July 19, 1:30 p.m.	Constr. a complete electric light and water works plant	W. S. Sargent, City Clerk.
Sask., Can.	Moose Jaw	July 24	Furn. 50 metallic frame arc lamps, current regulator, mercury rectifier, etc.	W. F. Heal, City Clerk.
Australia	Brisbane	Jan. 30, noon	Designs, supply and erection at Mount Crosby Pumping Station of alternatively one, two and three complete units consisting of power generating pumps and plants, etc.	Geo. Johnston, Albert St., S.&W.Bd
<b>FIRE EQUIPMENT</b>				
Iowa	Sioux City	July 15, 10 a.m.	Furn. one combination hose and chemical wagon, standard equipment, weight over 3,000 lbs.	R. S. Whitley, Supt. Pub. Safety.
<b>MISCELLANEOUS</b>				
New York	New York	July 14, 2:30 p.m.	Installing steam-power plant, Hospital Blackwell's Island	M. J. Drummond, Commissioner.
New York	New York	July 14, 2 p.m.	Furnishing gravel and broken stone	George McAney, Boro. Pres.
Massachusetts	New Bedford	July 14, 4 p.m.	Installing ventilating system, City Hall	F. W. Francis, Chm. Com.
Rhode Island	Providence	July 15, noon	Constructing 2 comfort stations	John H. Higgins, Chm. Com.
Indiana	Boswell	July 15, 6 p.m.	Erecting a library building	B. O. Rockwood, Sec'y. L'b'ry B.C.
Florida	Orlando	July 17, noon	Improving the St. Johns River ferry at Geneva ave. crossing by deepening, widening and straightening cut-off channel	B. M. Robinson, Clk. Circuit Court.
Ohio	E. Youngstown	July 17, noon	Furnishing fire engine, 600 gallons capacity	P. J. Carney, Clerk.
Pennsylvania	Connellsville	July 18, 11 a.m.	Building fire station	A. O. Bixler, Secy. Town Council.
Ohio	Cleveland	July 18, noon	Furnishing steel for City Hall	C. F. Wetzel, Clerk.
Ohio	Cleveland	July 18, noon	Furnishing sewer cleaning machine	A. B. Lea, Director.
Pennsylvania	Reading	July 18, 10 a.m.	Furnishing 30,000 bbls. Portland cement	County Comptroller.
Ohio	Cincinnati	July 19	Selling old auto, and purchasing new auto, cost \$3,000	J. J. Wenner, Clerk.
North Dakota	Kenmare	July 21	Constr. a 2-story brick city hall. Cost \$15,000. R. T. Frost of Minot, N. D., is the architect.	City Clerk.
Iowa	Oskaloosa	July 24, 5 p.m.	Constructing a city hall building	T. H. Carlin, City Clerk.
Washington	Raymond	July 26, 8 p.m.	Dredging and building bulkheads	J. E. Ellwood, City Clerk.
Dist. of Col.	Washington	July 26, noon	Stone work for foundations, concrete piles, masonry, etc.; plumbing and sewers for Columbus Memorial Fountain	Spencer Crosby, Col. U.S.A.
Indiana	South Bend	Aug. 3, 10 a.m.	Furnishing 50 or more voting machines	John W. Harbou, Auditor.

## STREET IMPROVEMENTS

**Mayfield, Cal.**—Two of the principal streets will soon be paved.

**Oakland, Cal.**—East Fifteenth st. will be extended and opened with uniform width of 80 ft.

**Pasadena, Cal.**—Parking Marengo ave., distance 11,046 ft. Many street improvements contemplated this season.

**San Francisco, Cal.**—Petitions have been filed asking to have Broadway widened 10 to 15 ft.

**Gainesville, Fla.**—Citizens will vote in September on \$75,000 bonds for brick paving and for water-works improvements.

**Indianapolis, Ind.**—The Commissioners of Marion County will soon ask bids for the construction of a gravel road on the line between Perry and Franklin Townships.—Albert Dahm is County Auditor.

**Burlington, Ia.**—On advice of City Solicitor Poor City Council rejected all bids for paving of Arch st., from 5th to 8th st.

**Remsen, Ia.**—Contracts are about to be let for concrete paving in Remsen to cost \$15,000.

**Sioux City, Iowa.**—Plans are being made for extensive concrete street paving.

**Waterloo, Ia.**—Resolutions providing for the paving of W. 6th, Locust and Bluff sts. phalt have been passed.

**Lexington, Ky.**—New specifications will be adopted and bids re-advertised for reconstruction of Lexington ave.

**Newport, Ky.**—Council will soon ask bids for improving about 50 streets.

**Napoleonville, La.**—City Council appropriated \$500 towards fund to grade and gravel public road along the Mississippi River from Bayou Goula to White Castle, a distance of 3 miles. Planters along the road will help, and with the aid of the Iberville Police Jury the work will begin at once. The City Council will request the people of the interior country to start a move towards graveling the public roads of that section, and promises the same help as that given Bayou Goula if they join in the corporation roads.

**Plaquemine, La.**—Petition from citizens in the Sixth Ward to build 2 miles of gravel road extending from the parish bridge to the Texas & Pacific Railroad crossing, then to Cut-off road, has been granted.

**Cambridge, Mass.**—Plans are being prepared for eliminating grade crossings at Porter's Station by the Boston & Maine Railroad Company.—A. B. Corthel is Chief Engineer, Boston.

**Baraga, Mich.**—Covington Township has voted \$13,000 bonds to build roads.

**Duluth, Minn.**—Board of Public Works has decided to improve Glenwood st. at cost of \$10,404 and Fourth alley at cost of \$3,899.

**Negaunee, Minn.**—The Board of Supervisors has voted an appropriation to improve the road between Little Lake and Turin.

**St. Paul, Minn.**—The City Engineer has prepared preliminary plans for paving Summit ave., from Dale to Lexington st., at a cost of from \$72,000 to \$90,000.

**Fulton, Mo.**—Special election July 18 to vote on proposition of forming special road district within a radius of eight miles of Fulton has been called by County Court.

**St. Louis, Mo.**—Petition has been presented to County Court of St. Louis County asking improvement of Valley ave., in Clayton.

**St. Joseph, Mo.**—Ordinances authorizing extensive paving, establishing of grades, etc., have been passed.

**Omaha, Neb.**—It has been decided to start proceedings for the acquisition of ground for boulevard purposes.

**Cranford, N. J.**—Sidewalks have been ordered laid in several streets.

**Hackensack, N. J.**—The Board of Freeholders has authorized the issue of about \$140,000 in bonds for road improvements and bridges.

**Newark, N. J.**—The Board Public Works has passed ordinances providing for the paving with brick portions of Johnson ave., Essex Court and Marion Pl.

**Perth Amboy, N. J.**—Extensive paving

improvements will be made at once. An error was made in passing an ordinance the latter part of last year and the early part of this year in regard to the paving, and a new ordinance is being passed.

**Bath, N. Y.**—The Senate is stated to have passed a bill providing for an appropriation of \$850,000 bonds for construction of roads in Steuben County.

**Buffalo, N. Y.**—The City Council is stated to have decided to repave Masten st. with asphalt.

**Elmira, N. Y.**—It is proposed to lay about 2,000 sq. yd. pavement; material not yet selected.

**Geddes, N. Y.**—An issue of bonds to the extent of \$60,000 will be made for building a road from Salway to State Fair Grounds.

**Rochester, N. Y.**—The Common Council is stated to have decided to pave a portion of East ave., at \$50,000.

**Duncan, Okla.**—The question of bonding the county for the construction of good roads and bridges is being discussed here, with prospects favorable that an election will be called at an early date. It is proposed to issue \$60,000 in bonds and proportion the money to each township according to taxable values.

**Erie, Pa.**—Ordinances have been signed by Mayor authorizing grading, curbing and paving three streets.

**Harrisburg, Pa.**—An ordinance has been passed authorizing the paving and curbing of Forster st.

**Johnstown, Pa.**—Citizens will oppose attempt of railway company to lay stone paving blocks between tracks and 1 ft. each side of street that has been ordered paved with another material.

**Philadelphia, Pa.**—Both chambers passed the bill providing \$40,000 for widening Chestnut st., westward from 22d st. to the bridge now in the hands of the contractors, being widened so that the cartway will be widened from 26 to 36 ft. This work will be placed under contract as soon as possible so that the street will be made the same width by the time the bridge is completed.

**Philadelphia, Pa.**—Committee on Navigation has passed the bill providing an appropriation of \$216,000 for the construction of a bulkhead on the Delaware River, from South to Christian st., which means the widening of Delaware ave.

**Shamokin, Pa.**—Ordinance has been passed providing for paving and curbing.—W. H. R. Smink is Chief Burgess.

**Souderton, Pa.**—Council has decided to have part of Main st. bricked.

**Bristol, Tenn.**—The Sullivan County Court voted unanimously to build the link necessary to connect the Memphis-to-Bristol highway.

**Bellevue, Tex.**—The Commissioners' Court of Clay County has granted the petition for an election for the qualified taxpaying citizens of this county to vote on issuing road bonds. The election is ordered for Saturday, Aug. 5. The people will vote on issuing \$200,000 5 per cent road bonds.

**Estelline, Tex.**—Citizens have voted \$40,000 bonds for good roads.

**Ennis, Tex.**—The Commissioners' Court has authorized Commissioner Kirkpatrick, of Ennis, to buy a new road grader for use in the Ennis road district.

**Galveston, Tex.**—Petition received for mudshelling portion of Avenue P½.

**Teague, Tex.**—In a special election held here to determine whether the City of Teague shall issue bonds to the amount of \$30,000 for street improvements, the bond issue carried by 102 votes.

**Waco, Tex.**—Citizens have voted \$200,000 bonds for opening streets, extending sewerage system, etc.

**Covington, Va.**—Allegheny County is considering \$100,000 bond issue to build more permanent highways.

**Lynchburg, Va.**—The good roads bonds voted several months ago by Amherst County to the amount of \$125,000 have been sold, and the Supervisors are busy with their preparation for the building of several new macadam roads.

**Richmond, Va.**—Election on \$300,000 bonds for road improvements has been postponed to first Tuesday in November.

**Chehalis, Wash.**—Council has provided for more street improvement on part of Division, Washington and Baistfort sts.

**Spokane, Wash.**—Seventh ave., between Milton st. and the extended west line of block 6, Winona addition, will be widened 5 ft.

**Spokane, Wash.**—New solution of Front ave. and Sheridan st. problem, to replace present grade separation plan until the city can put in the permanent improvement, is provided in tentative plans completed by City Engineer Morton Macartney. The substitute plan will cost over \$100,000 less than the original and for the present will obviate the damages to abutting property, variously estimated at from \$225,000 to \$1,000,000.

**Spokane, Wash.**—Three street improvements of estimated cost of exceeding \$50,000 have been recommended to Council by Commissioner D. C. Coates: Improvements are: Grading, curbing, parking and side-walking Lacross ave., Crestline to Perry, estimate \$10,300; paving with asphalt macadam Twenty-first ave., Bernard to Lincoln, estimate \$28,800; paving Fifth ave., Howard to Monroe, estimates, asphalt and brick, \$16,300; asphalt, macadam and brick, \$13,000; bitulithic and brick, \$17,500; bitumass and brick, \$14,200; standard or granitoid concrete, \$18,200; Hassam, \$16,000; petrolithic, \$12,200; wood blocks and brick, \$18,900.

**Wheeling, W. Va.**—The Streets, Alleys and Grades Committee instructed to ask for estimates as to cost of paving Edgington lane from the National road to the corporation line.

## CONTRACTS AWARDED

**Los Angeles, Cal.**—Street improving: to Fairchild, Gilmore, Wilton Co., Pacific Electric Bldg., for improving Broadway, \$32,323; J. J. Papac, constructing cement sidewalks on San Pedro st., \$6,218; Fairchild, Gilmore, Wilton Co., Pacific Electric Bldg., improving Ave. 20, \$14,237; H. T. Curtis, for improving "T" st., \$7,707.73; Geo. H. Oswald, for Mott st., aggregate \$7,822.

**Oakland, Cal.**—Grading, 60c. per cu. yd.; macadamizing, 10c. per sq. ft.; curbing, 12c. per lin. ft. to C. W. Cross; grading, 2c. per sq. ft.; macadamizing, 10c. per sq. ft.; curbing, 12c. per lin. ft.; to Ransome-Crummey Co.

**New London, Conn.**—Contracts for cement sidewalks, bids opened June 28, have been awarded as follows: 1st Sect., to Michael O'Connell, New London, 15 cts. per sq. ft.; 2d and 3d Sects., to The Artificial Paving Co., Syracuse, N. Y., 14.4 cts. and 14.3 cts. respectively; 4th Sect., to Frank Arrigoni & Bro., Middletown, Conn., at 14.75 cts., and 5th Sect., to M. O. Baker, New Britain, 127.8 cts.

**Augusta, Ga.**—Furnishing city 100 cars of cement gravel for street building purposes, to the H. W. Cassels Cement Gravel Co., city, 47c. per cu. yd., delivered in Augusta on the tracks of Central of Georgia, and 50c. delivered on tracks of any other railroad.

**Columbus, Ga.**—To M. C. Barlow, Columbus, for 2400 sq. yds. brick paving on 2d ave., about \$40,000.

**Benton, Ill.**—Paving 11 streets, to the Granite City Lime & Cement Co., of Granite City, \$77,200.

**Bloomington, Ind.**—The City Council, of Bloomington, has awarded the contract for the improvement of East 3d st., to Blair & Kerr, at \$41,265. Boston brick will be used.

**Peru, Ind.**—The contract for construction of approaches, curbs, sidewalks and steps for new court house at Peru, has been awarded to P. H. McCormack & Co., Columbus, Ind., at \$9,495.

**Portland, Ind.**—To L. O. Bearss & Co., Peru, for construction of O. S. Buckingham stone road in Bearcreek Township, \$3,699.

**Winchester, Ind.**—Bids for paving South st., from Greenville Pike to Jackson st., were received on June 28, by the County Auditor and the contract awarded to Wheat, Sisk, Rupel & Griffith, at \$30,037. The other bids were as follows: Seth Hinshaw Construction Co., \$31,096; Tripeer & Son, Peru, Ind., \$32,015; Adams Bros. Construction Co., \$32,500; Keegan Bros., \$33,901; Dan O. North, Bluffton, Ind., \$34,460.

**Newton, Kan.**—Bids were opened June 20 for alley paving, about 5,000 sq. yds., and the contract has been awarded to B. F. Evans, of Newton, as follows: Gutter, 18 cts. per lin. ft.; curb, 30 cts. per lin. ft.; excav., 40 cts. per cu. yd., and brick, \$1.96 per sq. yd.

**Louisville, Ky.**—Paving to cost \$56,000 to L. R. Figg Co., 243 6th St., Henry Bickel Co., 1048 Garden st., and L. W. Hancock Co.

**Louisville, Ky.**—By Board of Public Works, for paving following streets: Eden-side ave., from 335 feet southwest of Bards-town road to Baxter ave., to American Asphalt Company; Herp ave., from Bards-town road to Tyler Park, to Barber Asphalt Paving Company; Hill st., from First to Brook streets, to Louisville Asphalt Company; prices ranged from \$1.86 to \$1.96 per sq. yd., total amounting to \$32,000.

**Mansfield, La.**—The State Highway Dept. is stated to have awarded the contract for constructing 19 miles of earth road from Mansfield to Logansport to Geo. Eppe, of Shreveport, for \$28,039.

**Hibbing, Minn.**—Building all necessary cement sidewalks in city, to Johnson & Moynihan, Hibbing, 14 and 16c. per sq. ft.

**Omaha, Neb.**—Paving South Thirteenth st. from Vinton st. south to the city limits awarded to E. D. Van Court. Contract was approved with the understanding that \$14,000 of the work will be done this year and the remainder at some future time, next year if possible. Van Court bid \$1.98 sq. yd., estimate amounting to trifle more than \$28,000.

**Portsmouth, N. H.**—Furnishing and laying 1,540 lin. ft. straight edge stone, 14,250 sq. yds. concrete base, 3,200 sq. yds. granite block and 11,050 sq. yds. brick block, etc., to Fitzgibbons & Dolan, Beverly, \$43,886.

**Bayonne, N. J.**—To Sicilian Asphalt Pavement Company, New York City, for street improvements: 11th st., from Broadway to Ave. C, \$3,861.65; West 47th st., from Broadway to Ave. C, \$6,955.95; Margaret st., between the Boulevard and Ave. A, \$5,210.66; West 19th st., from Broadway to Ave. C, \$8,829.40; Humphreys ave., \$10,281.55.

**Morristown, N. J.**—The Board of Aldermen has awarded the contracts for the repair of Morris st. and Speedwell ave. to Warren Bros., at \$1.49 per sq. yd. The paving will be of bitucrete and will extend on Morris st. from King st. to the park; and on Speedwell ave., from the park to Sussex ave. The contract for paving with amiesite 2 ins. thick on telford base on the northwest side of the park and a 4-in. macadam base on the southwest side of the park has been awarded to Frederick S. Smith, at \$1.30 per sq. yd.

**Rochester, N. Y.**—Street improvements: Humbolt st. grading, from East Boulevard to Winton road North, to the John Petrossi Co., \$6,419; Washburn Park sewer and walks, to the John Petrossi Co., \$912.25; Murray st. cement walks, to William Baker, \$431; Kent st. brick pavement, from Jay to Smith sts., to Whitmore, Rauber & Vicinus, \$3,587.50; Culvert road cement walks to John J. Regan, \$2,155.50.

**Saranac Lake, N. Y.**—Building Warrensburg-Chestertown highway, 5.54 miles in length to Joseph Walker, of New Paltz, \$81,987; J. H. Gordon, of Albany, bid \$84,900; Sherrill Hardware & Plumbing Co., Hudson Falls, \$83,628, and John B. Dower, of Ballston Spa, \$83,000.

**Canton, O.**—The Board of Control is stated to have awarded contract for paving Gibbs, S. Court and William sts. to Piero & Talarico for \$30,968.

**Cincinnati, O.**—Contract for improvement of Loveland and Madelra road, from Remington to Camargo pike, to Van Camp Bros., for \$16,033.

**Findlay, O.**—Contract for the improvement of the Tiffin road from the city limits of Findlay east through Marion Township for \$3,040 awarded to John Semler. The specifications call for a crushed-stone road-bed with a smooth surface.

**Greenville, O.**—Contracts have been awarded for the construction of four roads: Duncan road in Brown Township, J. R. Smith, labor, \$5,890, and the Greenville Gravel Co., material, \$4,490; the Monney road in Mississippi Township, S. A. Warner, labor, \$13,598, and Albert Shafer, material, \$2,300; the W. R. Hittle road in Allen Township, Manning & Walls, labor, \$3,433, and the Greenville Gravel Co., material, \$5,220, and the Hemelgarn road in Allen Township, J. F. Hemelgarn, labor, \$1,398, and Greenville Gravel Co., material, \$2,595.

**Marion, O.**—The contract for constructing a pike in Marion County has been awarded to John D. Owen & Son, at \$18,935. Other bidders were: E. C. Brady, \$20,948; J. D. Gillespie, \$19,498; Molder & McNeal, Findlay, Ohio, \$19,256.

**Youngstown, O.**—Paving Myrtle ave. between South and Glenwood avenues to Kennedy Bros., \$39,865.90.

**Aitona, Pa.**—H. G. Hinkle has secured contract for oiling roads in Logan and Allegheny Townships.

**Memphis, Tenn.**—A contract for paving Union ave., between Main and Wellington sts., with creosoted wood blocks, has been awarded to R. C. Huston, at \$17,200.

**Seattle, Wash.**—Concrete walks on Market st., Eighth to Fifteenth aves., N. W., to Smith Contracting Co., Empire B'dg., \$3,591.30; grading Belvidere ave., to L. C. Lane, Hincley Block, \$52,586.25.

**Spokane, Wash.**—The Carbolineum Treating and Paving Co. will receive the contract for furnishing the city with 4,250 sq. yds. of wood blocks for paving the new Monroe st. bridge, on their bid of \$6,587.50, the lowest received.

**Quebec, Que., Can.**—To Falardeau Co., for paving with asphalt numerous streets.

## BIDS RECEIVED

**Los Angeles, Cal.**—Improving Slauson ave., between Central ave. to the west city line, a distance of about 16 blocks: (a) per sq. ft. for macadam, (b) per lin. ft. for cement curb, (c) per sq. ft. for cement gutter, (d) per sq. ft. for vitrified block gutter, (e) per sq. ft. for brick paving, (a) 13½c, (b) 35c, (c) 16c, (d) no bid; \$460 for culverts, \$810 for same. M. S. Cummings (a) \$5.22 per lin. ft., (b) 37c, (c) 17c, (d) 41c, (e) \$763. P. A. Thomas (a) 15.4c, (b) 37c, (c) 17c, (d) 40c, \$700 for culverts; \$1,176 for same. Geo. H. Oswald (a) 13½c, (b) 35c, (c) 15½c, (d) 35c, \$990 for culverts; \$1,150 for same. Geo. R. Curtis (a) 15c, (b) 37c, (c) 17c, (d) 35c.

**Green Bay, Wis.**—Paving Adams, Dousman, Crooks and other streets: (a) asphalt, (b) concrete, (c) brick, (d) macadam: Andrews Asphalt Pav. Co., Hamilton, O., (a) \$19,345; R. S. Blome Co., Chicago, (b) \$18,240; J. Brogan, Green Bay, 3 bids, (a) \$16,123, (c) \$17,278, (b) \$12,325; J. F. Hill, Chicago, (a) \$18,242; McGrath Constr. Co., Green Bay, (b) \$12,164, (d) \$12,569; Western Imp. Co., Racine, 3 bids, (a) \$16,289, (c) \$18,717, (d) \$13,705.

## SEWERAGE

**Anniston, Ala.**—Bonds, \$12,000, have been voted for up-to-date sewerage system.

**Conway, Ark.**—City is considering construction of sewer system estimated to cost \$25,000. Address The Mayor.

**Prescott, Ark.**—Board of Commissioners Sewer Improvement District No. 1, H. A. Hamilton, Chairman, has retained Jas. W. Beeby, consulting engineer, Poteau, Okla., to design system of sanitary sewers.

**Lindsay, Cal.**—Citizens have voted to install complete sewer system.

**Los Angeles, Cal.**—Bond election will be held to vote money for storm sewers.

**Bridgeport, Conn.**—Aldermanic Committee on Sewers has directed City Engineer McKenna to prepare maps for construction of two extensive trunk sewers, one to drain northwestern section of the city and other for East End, in accordance with the recommendations of Rudolph Hering; cost to city, \$100,000.

**Columbus, Ind.**—Council has ordered the construction of a new sewer system to drain Maple Grove, suburb on eastern edge of city; cost, about \$15,000; will empty into Hawcreek through two outlets.



**New Orleans, La.**—The plans for the big Napoleon ave. drainage system have been approved by the Sewerage and Water Board. The board will now advertise for bids for the work. The contract will be advertised sixty days in the newspapers of this city and in engineering publications in Chicago and New York. The work will be known under the title of contract 36D and provides for all the material, etc., as well as the digging and lining of the canal.

**Biwabik, Minn.**—Plans in detail for furnishing water and sewer for Shank's addition, a new addition to the village, have been laid before Council. Bids are to be advertised for, to be opened as soon as possible, that the work may be done this year.

**Maplewood, Mo.**—City is considering the construction of sewer system.—F. E. Guibor, Mayor.

**St. Joseph, Mo.**—Ordinance has been passed authorizing extensions of sewers.

**Neligh, Neb.**—Citizens have voted to issue \$10,000 bonds for sewer system.

**Atlantic City, N. J.**—Because a number of small streams over which the county built bridges a few years ago have gone dry, it is recommended that the committee purchase a supply of drain pipes. These pipes will be installed and the places filled in and the bridges done away with.

**Cranford, N. J.**—Engineer Mosher reported that a sewer for North ave., east, would cost \$25,000.

**Garwood, N. J.**—Council has decided to lay sewer on Fourth Ave.

**Jersey City, N. J.**—A resolution was passed instructing Chief Engineer Van Keuren to secure estimates from various contractors for the cleaning out of nearly all the sewers in the city. The wards which will be benefited by this action will be the First, Second, Third, Fourth, Fifth and Sixth. The cost is estimated at about \$15,000.

**Rochester, N. Y.**—Sewer will be constructed in Twenty-first Ward at cost of \$198,257.80.

**Schenectady, N. Y.**—City Engineer J. Leland Fitzgerald has prepared plans for sewer from Van Vranken ave. to the Mohawk River; have been approved by State Commissioner of Health.

**Charlotte, N. C.**—Citizens have voted \$150,000 bonds for sewers.

**Altoona, Pa.**—City Engineer authorized to employ Hering & Fuller, of New York, experts in sanitation, to pass on and complete plans for the construction of main sewers in the eastern district. The work will be taken up at once and it is expected that within ten days the plans will be ready to lay before councils for approval.

**Chambersburg, Pa.**—Plans for a water power plant to operate the machinery at the sewer disposal plant are being considered by City Council. The dam, etc., would cost \$10,000 and it would require two men to look after the operation of the plant. Wires can be run from the local light plant and motors placed for \$1,500, and the machinery run by electricity for \$500 a year.

**Chester, Pa.**—Ordinance has been passed authorizing construction of sewer in Lincoln avenue in Boro. of Prospect Park.

**Erie, Pa.**—Ordinances have been signed by Mayor authorizing construction of 9-in. lateral tile sewers in three streets.

**Williamsport, Pa.**—Sewer will be constructed in East End.

**Port Arthur, Tex.**—City will vote July 18 on \$75,000 bond issue for drainage.

**Waco, Tex.**—Citizens have voted \$200,000 bonds for extending sewerage system, opening roads, etc.

**Alexandria, Va.**—Appropriations for sewers have been made as follows: \$5,000 for continuation of the northwest trunk sewer; \$775 for sewer on Alfred St., from Duke St. southward to trunk sewer; \$450 for sewer on Alfred St., from Wilkes and Gibbon St.

**Clinton, Ia.**—Bids were received June 13 for completion of sewers in four divisions of Dist. 4; bids on total contract were as follows: (d) W. Green & Sons, Appleton, Wis., awarded contract, \$125,375; (e) Independent Construction Co., Davenport, \$147,283.46; (f) Lytle Construction Co., Sioux City, \$151,055.30; (g) Dearborn & Jackson, Cedar Rapids, \$163,324.05; following are itemized bids for Division B: (a) size, (b) length, (c) estimate of City Engineer R. C. Hart:

	A	B	C	D	E	F	G
2 Ring brick.....	48"	300'	\$11.50	\$12.00	\$15.00	\$12.00	\$16.50
1½ Ring brick.....	48"	500'	9.00	12.00	14.00	12.00	16.50
1½ Ring brick.....	42"	400'	8.85	12.00	13.00	10.00	14.25
Vitrified pipe.....	36"	410'	6.75	9.00	12.00	9.00	14.00
Vitrified pipe.....	30"	810'	6.25	7.30	10.00	8.00	10.00
Vitrified pipe.....	24"	867'	3.23	4.80	4.00	4.00	3.75
Vitrified pipe.....	18"	831'	2.12	3.20	2.75	3.00	2.75
Vitrified pipe.....	15"	840'	1.85	3.00	2.00	2.00	2.50
Vitrified pipe.....	12"	4,148'	1.34	2.15	1.75	1.50	1.75
Vitrified pipe.....	10"	740'	1.05	1.50	1.25	1.20	1.10
Catch basin pipe.....	10"	1,620'	.60	.60	.60	.60	.60
Rock excavation.....	..	7,200'	2.75	2.50	5.00	5.00	6.00
Manholes.....	..	26'	32.00	36.00	35.00	50.00	33.00
Catch basins.....	..	10'	28.00	36.00	27.00	30.00	33.00
Inlet basins.....	..	41'	26.00	14.00	25.00	30.00	33.00

**Lawrenceville, Va.**—Election will be held Aug. 1 to vote on bond issue of \$50,000 for complete sewerage system.

**Shelton, Wash.**—Town has passed \$15,000 bond issue for construction of sewers.

**Brandon, Man., Can.**—City Engineer R. E. Speckman will at once prepare plans for deepening and enlarging sewers on Rosser Ave.

**Huntington, W. Va.**—Bids will be advertised for construction of sewers.

## CONTRACTS AWARDED

**Denver, Col.**—The Westcott Doan Investment Co., Gas & Electric Bldg., Denver, Col., has been awarded contract for constructing part A sub-district storm sewers and appurtenances, District No. 1, Capitol Hill, Denver, \$2,875.

**Denver, Col.**—The Commonwealth Construction Co., 3353 Delgany st., Denver, Col., has been awarded contract for constructing sanitary sewers and appurtenances for complete sanitary drainage in Part A Subdistrict No. 3, West and South Side Sanitary Sewer District, for \$99,663.

**Fowler, Colo.**—To Gordon & Lumsden, of Pueblo, for construction of sanitary sewer system; about \$15,544.

**Detroit, Mich.**—Completion of work on Fairview sewer, Section 1, to John Ginzel, Buhl Bk., \$32,700.

**Chisholm, Minn.**—Sewer work; brick work, to the Range Lumber Co., city; concrete work, to King Lumber Co., city; pipe work, to Red Wing Sewer Pipe Co., Red Wing; manhole rings, covers and buckets, to Virginia Foundry & Machine Co.

**Duluth, Minn.**—Building trunk sewer in Forty-first ave., to Pastore & Lawrence, \$8,628.05.

**New York, N. Y.**—Constructing sewer in Riverdale ave. and 259th st., to E. N. Lynch, 344 Vernon ave., Brooklyn, about \$6,770.

**Schenectady, N. Y.**—Laying sanitary sewer in Campbell Ave. to De Nallo & Klingberg.

**Niles, O.**—By Board of Control for construction of the sewer in sub-district of District No. 1 to Contractor Manelli, of Pittsburg, who is building South Side sewer.

**Spokane, Wash.**—To Lang & Smith, for building First Ward subtrunk sewer No. 19, estimate, \$10,115; contract price, \$7,790; sewer on Twentieth, Latawah to Hatch, estimate \$4,880, price \$3,790; sewer on Ninth and Tenth, Grand to Hilliard, estimate \$5,000, price \$3,860; sewer, Rockwood Boulevard to Twenty-ninth on Garfield road, estimate \$14,470; contract price, \$11,460.

**Independence, Wis.**—Furnishing material and constructing sewers requiring about 4,377 lin. ft. 24, 20, 15 and 12-in. vitr. pipe, 10 lin. ft. 30-in. steel pipe, etc., to F. C. Robinson & Co., Manitowoc, \$9,200.

## BIDS RECEIVED

**Nevada, Ia.**—Construction of sewers, etc., from plans of Sam Steigerwalt: (a) Sewage disposal plant, complete, including septic tank, 2 complete sand filters, complete sludge area; with outlets (lump sum), (b) Outlet sewer complete, including approx. 3,080 ft. 15-in. sewer, 730 ft. of 15-in. concrete sewer on piers, 15 standard manholes and 1 square concrete manhole complete (lump sum). (c) Sewers complete, including all sewers, manholes, flush tanks, Y connections, etc., and all appurtenances and not included under items A and B: Des Moines Pipe & Iron Co., Des Moines, (a) \$3,500, (b) \$8,200, (C per ft.) 72c, (C total) \$24,832. C. R. McKay, Omaha, (b) \$6,096. Hoosier Constr. Co., Great Bend, Kan., (a) \$6,075, (b) \$5,250, C per ft., 63½c, C total, \$21,901. Henning-Vineyard Co., Evansville, Ind., (a) \$6,800, (b) \$5,900, C per ft., 63c, C total, \$21,728; W. D. Yeager, Cedar Rapids, (a) \$5,777, (b) \$5,164, C per ft., 64c, C total, \$22,073; Zitterell & Sullivan, Webster City, (a) \$5,160, (b) \$5,998,

C per ft., 73c, C total, \$25,177; Lanyan & Clifford, Waukegan, Ill., (a) \$5,685, (b) \$7,500, C per ft., 83c, C total, \$28,626; Dunnegan & Briggs, Shenandoah, C per ft., 60c, C total, \$20,694; Hawkeye Construction Co., Webster City, (b) \$6,033.80, C per ft., 80c, C total, \$27,592; Hoer & Parkinson, Iowa City, (a) \$6,149, (b) \$5,795; Merrifield Constructing Co., Monmouth, Ill., C per ft., 57½c, C total, \$19,718; Geo. A. Mallory & Co., Kewanee, Ill., (a) \$5,600, (b) \$4,900; C per ft., 3 bids, 12-in. 85c, 10-in. 72c, 8-in., 53c; C total, \$20,400.

**Baltimore, Md.**—M. M. Elkan Co., Macon, Ga., is lowest bidder at \$505,000 for construction of storm-water drains in bed of Jones' Falls from point 100 ft. south of Baltimore st. to Center st.; work will require 28,000 cu. yds. of earth excavation, 900 cu. yds. of rock excavation, 40,000 cu. yds. of concrete masonry, 75 cu. ft. brick masonry, 4,000,000 lbs. of reinforcing steel, 12,000 sq. yds. granolithic resurfacing, 140,000 ft. of piles, 2,000 ft. foundation lumber, 50 tons cast-iron pipe, 900 lin. ft. vitr. sewer pipe and 40 tons structural steel.

## WATER SUPPLY

**Hartselle, Ala.**—The city has issued bonds for the installation of a water works system. The water will be taken from Short Spring, three miles distant.—X. A. Kramer, of Magnolia, Miss., is Engineer.

**Stevenson, Ala.**—Messrs. J. H. McMahan, W. W. Sanders and Dr. J. W. Gogges, Committee from the Business Men's Association, are having estimates made for construction of system of water works.

**Hamburg, Ark.**—City purchased water works of W. E. Kittrell & Sons for \$4,000; will improve. Address The Mayor.

**Exeter, Cal.**—The city is considering the installation of a water works system; estimated cost, \$40,000.

**Lindsay, Cal.**—Citizens have voted to purchase now privately owned water works.

**Long Beach, Cal.**—\$850,000 bonds voted for purpose of acquiring the two water plants.

**Bridgeport, Conn.**—Fire Department is considering installation of water tower.

**Gainesville, Fla.**—Citizens will vote in September on \$75,000 bonds for water works improvement and for brick paving.

**Thomaston, Ga.**—Will construct water works, J. B. McCrary Co., Engineers, 1317 Empire Bldg., Atlanta, Ga. \$50,000 bonds issued.

**St. Maries, Ida.**—City will issue \$20,000 bonds for construction of sewerage system.

**Herrin, Ill.**—The citizens on June 19 voted to issue bonds for \$33,500 for the construction of a water-works system.

**Stockton, Ill.**—The village will issue bonds for \$4,500 for the purpose of extending and enlarging the water works.—George H. Brown is Village Clerk.

**Westfield, Ill.**—W. R. Paige, of Terre Haute, Ind., has completed plans for water works, to cost about \$5,000, and contracts will be let at once.

**Mason City, Ia.**—Mayor F. M. Norris is reported to have recommended rebuilding the water supply system, installing more fire hydrants, wells and another high pressure pump.

**Mason City, Ia.**—Council has ordered installation of 4,000-gallon capacity pump, 8-in. hydrants in business district and high duty pump at pumping station.

**Cedar Vale, Kan.**—The J. S. Worley Company, Reliance Bldg., Kansas City Mo., has been engaged to prepare plans for the construction of water works extension here.

**Syracuse, Kan.**—The J. S. Worley Co., Reliance Bldg., Kansas City, Mo., is preparing plans for water works and an electric light plant, to cost about \$40,000.

**Sylvan Grove, Kan.**—The construction of the water-works system here has been estimated to cost \$35,000. Engineer has not been employed.—W. H. Breihan is City Clerk.

**Grand Cane, La.**—Installation of electric water by system of deep wells is being considered.

**Baraga, Mich.**—J. F. Pruer, of St. Paul, Minn., will prepare preliminary plans for municipal pumping plant and a lighting system.

**Ionia, Mich.**—Council has decided to expend \$5,000 in bettering water works.

**Saginaw, Mich.**—Engineer R. W. Roberts, of the water works, has asked Council for the appropriation of \$7,000 to equip the plant with two new duplex compound pumps of 3,000,000 gals. capacity.

**Blackduck, Minn.**—The city will ask for bids for 850 ft. of 6-in. and 550 ft. of 4-in. water pipe, two hydrants and one angle elbow.

**Bl'oxi, Miss.**—Citizens have voted \$70,000 bonds for improvements and extensions to water works.

**St. Joseph, Mo.**—Ordinance has been passed authorizing extensions of water mains.

**Ashland, Neb.**—Citizens will vote July 18 on \$7,000 bonds to enlarge and improve water works.

**Bronson, Neb.**—Special election for \$25,000 water extension bonds was carried by a large majority.

**Crawford, Neb.**—Clyde J. Hornsby, City Clerk, is considering the construction of a water works system; estimated cost, about \$24,000.

**Dunbar, Neb.**—Installation of water works is being considered.

**Haigler, Neb.**—The citizens have voted to issue \$8,500 of bonds for the construction and equipment of a water works system and for fire protection.—W. F. Wood is Town Clerk.

**Surprise, Neb.**—Council is considering election on \$5,000 bonds for installation of water works.

**Bridgeport, N. J.**—The water from the experimental wells bored at Bridgeport has been found to be of a very high quality. The company will proceed at once with the erection of a plant.

**Buffalo, N. Y.**—George W. Fuller, Consulting Engineer, 170 Broadway, New York, has submitted his report to the Water Commissioners of Buffalo concerning the proposed sterilization of the city water supply. The report provides for a structure 20 ft. wide and 60 ft. long adjacent to the old pumping station with necessary solution tanks, stirring arrangements and a device for properly mixing the solution of hypochloride of lime with the water and a small laboratory inside the building; estimated cost, \$27,000.

**Middleport, N. Y.**—The village is considering the expenditure of \$45,000 for the installation of a water-works system.

**Hubbard, O.**—Citizens have voted \$30,000 for installation of water works.

**Bartlesville, Okla.**—E. T. Archer & Co., consulting engineers, Beals Bldg., Kansas City, Mo., are preparing plans for water works; estimated cost \$250,000.

**Bennington, Okla.**—The City Council has decided to install a water works system. Estimated cost, \$20,000.

**Enid, Okla.**—The city is considering improvements to the water works system; estimated cost, \$6,000.

**Muskogee, Okla.**—It has been determined to readvertise for bids for construction of new Grand River intake. Council will advertise for three propositions on the intake, one for a concrete tunnel under the bed of the river, one for a concrete tunnel on the bed of the river and one for an iron pipe. All propositions call for an intake 54 in. in diameter and to extend 200 ft. further into Grand River than the one at present.

**Oklahoma City, Okla.**—The City Commissioners are considering the construction of an additional dam, about 15 ft. high, near the water works.—William C. Burke is City Engineer.

**Hermiston, Ore.**—Plans have been prepared for the installation of a system of water-works here; estimated cost, \$49,000. The work will include an elevated tank distributing system and pumps.

**Merrill, Ore.**—Plans are being prepared for the construction of a water-works system here.—E. S. Fitch is Mayor.

**Allentown, Pa.**—Specifications are being prepared for a 12,000,000-gal. horizontal, cross-compound pumping engine.

**Erie, Pa.**—Expert civil engineers will be employed by Commissioners of Water Works to prepare preliminary plans for improvements in water works system.

**Cleveland, Tenn.**—It has been determined to spend \$10,000 to repair water mains.

**Lawrenceville, Va.**—City will vote August 1 on \$50,000 bond issue for construction of water works, sewer system and electric light plant; D. S. Hicks, Jr., Mayor.

**Conconully, Wash.**—F. R. Weeks, Town Clerk, writes that J. D. Morton will install water works and electric-light plant; cost \$6,000.

**Hillyard, Wash.**—The City Council has decided to improve the water system by replacing the old wooden mains with new steel mains.

**Wapato, Wash.**—D. H. Redman, Engineer, has submitted plans to the City Council for the construction of a municipal water plant.

**Woodland, Wash.**—The city has decided to issue bonds for the installation of a municipal water-works system.

**Welland, Ont., Can.**—Contract for constructing the flume, wheel pits, foundation and tail-race in connection with the construction of the new water-works system, has been awarded, it is reported, to W. H. Weller, of St. Catharines, Ont., at about \$40,000.

## CONTRACTS AWARDED

**Waterbury, Conn.**—Stripping Morris reservoir to Fred. T. Ley Co., Springfield, Mass., \$127,400; other bidders: R. H. Newell Co., Uxbridge, Mass., \$148,980; Coleman Bros., Boston, Mass., \$137,230; Irving V. Holley, for Massetti & Holley, Torrington, \$132,150; George Tracy, Waterbury, \$138,300.

**Chicago, Ill.**—The following contracts for furnishing and laying water service pipes have been awarded by the Board of Local Improvements: South Lincoln st., West Madison st., South Morgan st., West 37th pl., Daniel Hardin, 3139 Indiana ave.; Vincennes rd., David Walsh, 6628 South Chicago ave.; Sawyer ave. system, James J. Renn, 367 West Chicago ave. Bids were opened on June 1.

**Emporia, Kan.**—The contract for the construction of water works has been awarded by the city to the Builders' Material Supply Company, Scarritt Bldg., Kansas City, Mo., at \$9,097.—Fred H. Smith is City Clerk.

**Cannon Falls, Minn.**—The contract for c.-i. water pipe has been awarded to J. B. Clow & Sons, Chicago, Ill., at \$33 per ton for 4-in. and 3 cts. per lb. for specials.

**Duluth, Minn.**—The contract has been awarded to John A. Johnson for constructing a 5,000,000-gallon reservoir for the middle system on 13th st. and 3d ave. East, at about \$40,350. Bids were opened on June 15.

**Ellsworth, Minn.**—The contract has been awarded to P. N. Gilham, of Luverne, Minn., for constructing a 50,000-gallon reservoir here.

**Kansas City, Mo.**—The Board of Fire and Water Commissioners has awarded the contract for constructing a building for the city hypochloride plant at Quindaro to Flanagan Bros., at \$7,100.

**Albion, Neb.**—The contract has been awarded by the city to Parker Bros., for constructing an addition to the water plant.

**Red Springs, N. C.**—City awarded water works and sewerage contracts as follows: Construction to Robertson Construction Co., Charlotte, N. C.; cast-iron pipe to General Fire Extinguisher Co., Charlotte; tower and tank, R. D. Cole Manufacturing Co., Newnan, Ga.; hydrants and valves, Columbian Iron Works, Chattanooga, Tenn.; boilers, James S. Scofield Sons Co., Macon, Ga.; pumps, Buffalo Steam Pump Co., Buffalo, N. Y.; terra-cotta pipe, Pomona Terra-Cotta Co., Pomona, N. C.; total amount of contracts \$40,000; Gilbert C. White, Engineer, Durham, N. C.

**Muskogee, Okla.**—The contract has been awarded to the U. S. Cast Iron Pipe & Foundry Company, Rookery Bldg., Chicago, Ill., by the city, for furnishing pipe for the new water-works system, at \$83,000. The Rensselaer Valve Company, Troy, N. Y., secured the contract for valves, and J. B. Clow, Chicago, Ill., the contract for fittings.

**Nowata, Okla.**—The contract has been awarded to Nelson Bros., by the city for the construction of extensions to the water-works system, at \$62,110. The work will include pump and boiler, pump and boiler engines, water line from the plant to town and a distribution system in the city.—T. C. Hughes, of Tulsa, Okla., is Engineer.

**Seattle, Wash.**—Laying water mains on W. 80th st. to Church & Erickson, 126 20th st., \$14,307.30; penstock at Lake Union Auxiliary plant, Cummings & Kiehl, \$29,995.20.

**Spokane, Wash.**—Commissioner Fassett has recommended purchase price of 5,000 ft. of 6-in. c.-i. pipe from R. D. Wood & Co. on the latter's bid through F. T. Crowe & Co. of \$42.10 per net ton.

**Tacoma, Wash.**—A contract for the steel bands for the water flume of the gravity system to be constructed between the McMillan reservoir to the city has been awarded to the West Coast Wagon Co. by Contractor P. McHugh. The contract includes about 2,500 tons—about 100 carloads—of five-eighths round milled steel. The steel will be purchased from the Illinois Steel Works, and much of it will be threaded by the local company. Early delivery will necessitate a part of the threading being done in the Illinois works, however.

**Edmonton, Alta., Can.**—Furnishing high-pressure turbine to Canadian Westinghouse Co., Hamilton, Ont., \$47,500.

## BIDS RECEIVED

**Los Angeles, Cal.**—Furnishing steel and rivets for 5-riveted steel syphons for Owens River Aqueduct: Treadwell Construction Co., \$143,000, f. o. b., Midland, Pa.; W. M. B. Pollock Co., \$150,000, f. o. b., Youngstown, O.; the Reeves Bros. Co., \$143,000, f. o. b., Alliance, O.; Pacific Coast Manufacturing Co., \$149,700, f. o. b., Pittsburg,

Pa.; Hammond Iron Works, \$165,385, f. o. b., Struthers Station, Pa.; Scully Steel & Iron Co., \$167,000, f. o. b., Chicago, Ill.; the Ruemeli Dawley Manufacturing Co., \$169,900, f. o. b., St. Louis, Mo.; the East Jersey Pipe Co., \$169,000, f. o. b., Paterson, N. J., for steel, and Glassport, Pa., for rivets; Riter-Conley Manufacturing Co., \$169,987, f. o. b., Pittsburg, Pa.; the Petroleum Iron Works, \$153,700, f. o. b., Sharon, Pa.; deduction, \$9,200; W. M. Graver Tank Works, \$182,000, f. o. b., East Chicago, Ind.; Camden Iron Works, \$161,000, f. o. b., Camden, N. J. There will be 3 syphons; one will be 2016 ft. long of 9-ft. 3-in. diameter; one 5187 ft. long, 10-ft. diameter, and one 8455 ft. long, 11-ft. diameter.

**Baltimore, Md.**—Furnishing new high-service pump to be placed in Mount Royal Station, lowest bidders, Bethlehem Steel Company, 48-in. stroke, about \$109,000; 54-in. stroke, \$111,000, and for 60-in. stroke, \$114,000.

**Lynn, Mass.**—Furnishing pumps to be installed at pumping stations at Montrose and at the Glen Lewis end of Walden Pond for enlargement of Lynn's water supply: Hatch & Wood Electric Co., motors, 10-hp, external resistance, \$251; 15-hp external resistance, \$312.50; 100-hp external resistance, \$824.50; 10-hp internal resistance, \$214.75; 15-hp internal resistance, \$281; Frank E. Davis, Boston, centrifugal pump of 15,000,000 gallons capacity, \$7,900; Henry R. Worthington, \$3,385 for 3,000,000-gallon, 5,000,000-gallon and 15,000,000-gallon pumps; R. D. Wood & Co., Philadelphia, \$1,440 for one type of 15,000,000-gallon pump and \$1,275 for another; Lynn Gas & Electric Co., for Montrose, 10-hp motor, \$220.16; 15-hp motor, \$275.31. For the Lynn Woods plant the company offers to furnish free a synchronous motor of sufficient size, with suitable switchboard panel, the motor to remain the property of the Lynn Gas & Electric Co., operation and repairs to be paid by the city; F. S. Hardy & Co., Boston, motors, 100-hp, \$949; 15-hp, \$299; 1-hp, \$77.50; Harold L. Bond Co., Boston, centrifugal pump of 3,000,000 gallons capacity, \$265; 5,000,000, \$350; 15,000,000, \$800; Platt Iron Works, Dayton, O., 5,000,000-gallon pump, \$754; 3,000,000 gallons, \$571; 15,000,000 gallons, \$1,355; 15,000,000 gallons of different type, \$1,745; Henry R. Worthington Co., Boston, \$1,965 for 15,000,000-gallon pump; Charles J. Jager, Boston, 3,000,000-gallon pump, \$587; 5,000,000 gallons, \$737; 15,000,000 gallons, \$346; air compressor, \$254; 3,000,000-gallon pump for the Montrose, \$230; 5,000,000-gallon pump for Montrose, \$340; W. F. Embree Co., Lynn, motors, 10-hp, 15-hp and 100-hp, \$1,391.31; Fuller Electric Co., Lynn, 10, 15 and 100-hp motors, \$1,540; Edward D. Dearborn, labor and material on buildings, \$3,378.50; Haskell, Sutherland Co., labor and material on buildings, \$2,765; Perrin, Seamans & Co., three centrifugal pumps, \$1,373; Alberger Pump Co., three pumps, one of 3,000,000 gallons, another of 5,000,000 gallons and a third of 15,000,000 gallons, \$2,400.

**Bridgeton, N. J.**—Complete construction of a pumping station and water filtration works, with machinery, pumps, filters, etc., from plans of Clyde Potts, 30 Church st., New York, N. Y., lowest bidder, Harry H. Hankins & Bro., Bridgeton; about \$70,000.

**New York, N. Y.**—Furnishing, delivery and laying water mains and appurtenances in Eastern Boule., Pelham Bridge road, City Island road and Fordham st., Boro. of Bronx; lowest bidder, L. D. Gregory, City Island, \$36,599; as follows: the unit prices on his bid are as follows: 960 tons pipe, \$22.80; 20 castings, \$46; 10 castings, \$40; 9,500 cu. yds. earth excav., 1c; 400 cu. yds. rock excav., \$3.80; 50 cu. yds. rock excav., 1c; 10 cu. yds. masonry, 1c; 11,000 lin. ft. 20-in. pipe, 75c; 1,500 lin. ft. 12-in. pipe, 30c; 200 lin. ft. 8-in. pipe, 15c; 300 lin. ft. 6-in. pipe, 15c; 5 20-in. valves to set, \$15; 2 12-in. valves to set, \$10; 1 8-in. valve to set, \$8; 13 6-in. valves to set, \$8; 12 hydrants to set, \$8. Totals of other bids: Walton Contr. Co., \$41,528; Wilton Constr. Co., \$46,453; Beaver Eng. & Contr. Co., \$41,134; Nelson & Dowling, \$42,717; Henry E. Fox, \$39,745; Daly Bros. Co., \$41,953; Rodgers & Hagerty, \$40,611; F. N. Lewis, \$41,318; F. V. Smith & Son, Inc., \$46,410. In Northern, Post, Seaman, St. Nicholas and Vermilyea aves.; in Cooper, Hawthorne and other streets, lowest bidder, L. D. Gregory, City Island, total of \$44,016, including valves, pipe, hydrants, etc.; he bid for 750 tons pipe, \$23; 50 tons castings, \$47; 65 tons castings \$40; 12,000 cu. yds. excav., 1c; 4,000 cu. yds. rock excav., 1c; 100 cu. yds. rock excav., 1c; 225 cu. yds. mas. excav., 1c; 200 ft. 20-in. pipe, to lay, \$1; 8,300 ft. 12-in. pipe, to lay, 42c; 17,500 ft. 8-in. pipe, to lay, 40c; 2,000 ft. 6-in. pipe, to lay, 30c; two 20-in. valves, to set, \$10; 16 12-in. valves, to set, \$5; 56 8-in. valves, to set, \$3; 96 6-in. valves, to set, \$3; 90 fire hydrants, to set, each, \$5; 600 sq. yds. asphalt block, \$3; totals of other bids: Jas. McAvoy, \$52,712; Wilton Constr. Co., \$56,997; Beaver



Eng. & Contr. Co., \$46,901.70; Henry E. Fox, \$61,043.85; Franklin Contr. Co., \$65,529; Walton Contr. Co., \$45,460.05; Rodgers & Hagerty, \$57,168; Goodman Contr. Co., \$52,623, and Daly Bros. Co., \$62,846.

**Syracuse, N. Y.**—Furnishing Bureau of Water with 58,000 pounds of lead pipe; Welch & Kehoe, \$5.47 per 100 lbs.; Pierce, Butler & Pierce Manufacturing Company, \$5.15; Edward Joy Company, \$5.17; for furnishing the bureau with 40,000 lbs. of pig lead, Edward Joy Company bid 4.6 cts.; Pierce, Butler & Pierce Manufacturing Company, 4.7 cts. lb.

**Dallas, Tex.**—Drilling West Dallas wells: Sharp & Company, three at \$2.75 per ft. for 6-in wells to third Woodbine stratum; two others after completion of the first two, at the same rate; Fausett & Hall, Corsicana, one well at \$3 per ft. or more at \$2.75 per ft.; P. O. Hoffman, Corsicana, \$2.75 per ft.

**Seattle, Wash.**—Laying water mains in W. 60th st.: Ferguson-Coit Co., \$14,716; Washington Constr. Co., \$14,493; Allain & Hull, \$15,089; Jahn Con. Co., \$14,851; Church & Erickson, 126 Twentieth ave., \$14,307.30; Am. Contracting Co., \$16,580.

## LIGHTING AND POWER

**Clarksville, Ark.**—A municipal lighting plant, a sewer system and water-works will be built.

**Chico, Cal.**—Pacific Gas & Electric Co. have decided to expend about \$125,000 in extending its gas mains to Chico, Vecino and Chappantown; will also erect gas tank with a daily capacity of 100,000 gals.

**Albany, Ga.**—City will probably commence work about October 1 on installation of water-gas system; about 12 miles of mains; \$50,000 available; R. J. Edgerly, City Engineer.

**Connersville, Ind.**—E. D. Johnston will soon ask bids for construction and equipment of hydraulic power plant on White-water Valley Canal.

**Marion, Ind.**—Col. J. L. McCulloch has ordered plans for construction of an artificial gas plant; also for construction of 8-in. pipe line about 8 miles in length.

**Leavenworth, Kan.**—D. A. McKibben, city, and W. B. Walker, Excelsior Springs, Mo., are planning to organize corporation to build electric line between Leavenworth and Excelsior Springs; power plant is to be in this city and will cost \$13,300; proposed electric line is to run through Beverly and Platte City, Mo., one mile south of Smithville, and seven miles north of Liberty, Mo.

**Baraga, Mich.**—Village is considering installation of electric light plant.

**Newberry, Mich.**—Council will expend \$4,000 installing additional machinery at electric light plant.

**Mexico, Mo.**—Council has granted 30-yr. franchise to the Mexico Power Co. for central heating plant, to be installed this summer in the downtown district.

**St. Joseph, Mo.**—It is planned to enlarge the electric light plant and install additional street lights.

**Stoneharbor, N. J.**—A gas plant is being considered, it is stated.

**Camden, N. Y.**—Citizens have voted to install second unit in municipal electric light plant.

**Philadelphia, Pa.**—Additional arc lights are needed on Germantown ave.

**Edgefield, S. C.**—The commission is having made specifications and detailed plans for installing the electric light plant, and as soon as these are completed bids will be received.

**Tioga, Tex.**—L. A. Marshall submitted a proposition to the Commercial Club at the last meeting to install an electric light plant, which was favorably received. Mr. Marshall is closing up contracts preparatory to putting the plant in operation at an early date.

**Junction, Utah.**—Piute County Electrical Co. has been incorporated to establish electric lighting system in Piute County; capital, \$12,000. M. M. Steele, president.

**Provo, Utah.**—Council is considering ordinance granting twenty-five-year franchise for a gas plant to J. A. Jones.

**Hardwick, Vt.**—The citizens have voted \$65,000 to increase the capacity of the electric plant. A dam, 13 ft. high, will be built.

**Port Orchard, Wash.**—The Bremerton & Charleston Light & Fuel Co. has petitioned County Commissioners for franchise to furnish electric current for lighting and other purposes on certain streets and roads.

**Fond du Lac, Wis.**—Steel light towers will be removed and ornamental street lighting substituted.

**Hamilton, Ont., Can.**—Board of Control have recommended that the Council submit a by-law to the ratepayers to raise \$505,160 for the purpose of constructing a plant to distribute hydro-electric power and light.

## CONTRACTS AWARDED

**Pasadena, Cal.**—Additional unit for municipal lighting plant to be installed, costing \$22,855.30; bids for machinery has been given to Westinghouse Machine Co.

**Anderson, Ind.**—By Anderson Gas Company for relief holder, oil tank, exhauster and cleaners to Western Gas Construction Company, Fort Wayne; for all other machinery to the United Gas Improvement Company, Philadelphia.

**Boston, Mass.**—The present contract with the Rising Sun Street Lighting Co. has been extended to Feb. 1, 1912, at \$23.60 per year per lamp. L. K. Rourke is Comr. Pub. Works.

**Negaunee, Mich.**—A contract has been awarded to W. H. Yates, Negaunee, representing the Allis-Chalmers Co., Milwaukee, Wis., for improving the electric light plant, which includes one 350-H.P. cross-compound Corliss type engine, to drive 200-KW. alternator and auxiliaries, switchboard, etc., to cost about \$15,000.

**Barker, N. Y.**—A franchise has been granted to the A. F. Sweet Electric Light & Power Co., Medina, to light Barker.

**Austin, Tex.**—By Council to William D. Johnson, Hartford, Conn., and New York, for construction of dam across the Colorado River here and installation of hydraulic plant; total cost \$1,600,000.

## FIRE EQUIPMENT

**Little Rock, Ark.**—City Council appropriated \$40,000 for purchase of additional fire equipment and for installation of alarm boxes and telephone switchboard. Address the Mayor.

**Los Angeles, Cal.**—Bond election will be held to vote money for improvements to fire department.

**Oak Park, Cal.**—Fire Commissioners are planning to erect fire house; also considering installations of fire alarm system and extra hydrants.

**Santa Monica, Cal.**—Fire Commission considering purchase of combination auto fire truck.

**Pueblo, Colo.**—Fire Chief Sam Christy has recommended purchase of two motor-driven combination hose wagons and engines for use in outlying districts.

**Boise, Ida.**—S. W. Walker and H. W. Fulton are inspecting fire equipment in Ogden, Utah, with view to purchase of similar equipment for this city.

**Danvers, Ill.**—Fire Committee has recommended purchase of auto combination chemical and hose wagon.

**Evansville, Ind.**—Money has been set aside for rebuilding fire engine.

**New Albany, Ind.**—Ordinance appropriating \$1,500 for purchase of fire hose was enacted.

**Mason City, Ia.**—Council has ordered purchase of 3000 ft. of hose and 75-hp fire engine; is also considering erection of fire station.

**Leavenworth, Kan.**—Chemical hose and nozzle will be purchased.

**Baltimore, Md.**—Architect A. Cookman Leach will prepare plans for erection of \$25,000 fire house at Light and Montgomery sts.

**Walkerville, Mich.**—Council has decided to purchase gasoline engine.

**St. Joseph, Mo.**—Ordinance has been passed authorizing purchase of fire hose.

**Jersey City, N. J.**—E. S. Clayton of the Hudson County Inspection Bureau and C. W. Fisher of the National Board of Underwriters have recommended to the Board of Finance improvements in the department which will cost the city \$141,833.67.

**Saranac Lake, N. Y.**—Scopes & Feustmann will at once prepare plans for erection of proposed fire house.

**Marietta, O.**—Merchants' Association has recommended that a station be built in rear of the city hall and a modern triple combination pump, hose and chemical wagon be installed; cost, \$23,000.

**Danville, Va.**—National Board of Fire Underwriters has made following recommendations: Automobile combination hose wagon for Hose Co. No. 1; establishment of a new company on Grove and Main sts. equipped with auto combination engine and hose wagon; equipping aerial truck with automatic raising device; each hose wagon in service to be equipped with 35-gal. chemical tank and 250 ft. of chemical hose; placing a plain hose wagon in reserve in the congested district, provided with a turret nozzle and a deluge set, and loaded with 1,200 ft. of 3-in. hose; purchase of 1,500 ft. of new hose annually; also minor equipment.

**Huntington, W. Va.**—The Board of Commissioners made preliminary arrangements for the immediate purchase of a site for the establishment of a fire station in Guyandotte for the protection of that section of the city.

## CONTRACTS AWARDED

**Boston, Mass.**—To Safety Insulated Wire & Cable Company, for furnishing cable for use of the fire-alarm branch, \$6,474.75; Standard Underground Cable Company, \$6,502.80; F. M. Ferrin, \$7,131.26; American Steel & Wire Company, \$7,777; Pettingill & Andrews Co., \$11,495.82; to John T. Shea, Jr., for doing underground work for fire-alarm branch in connection with the laying of cables, \$1,543.75; other bidders: John A. Costello Company, \$1,803.33; Hussey & Co., \$1,786.05.

**Alston, Mich.**—Building fire hall to Martin Metiera, Nissula, \$3,300.

## BIDS RECEIVED

**Peoria, Ill.**—Furnishing fire hose, New Jersey Car Spring & Rubber Co., 2000 ft. 2½-in. and 800 ft. 1-in., \$1,800; a so bid of \$1,695; New York Belting & Packing Co., 2000 ft. 2-in. and 800 ft. 1-in., \$1,547; Voorhees Rubber Manufacturing Co., 2000 ft. 2½-in. and 800 ft. 1-in., five bids, 2 for \$1,000, 1 for \$1,900, 1 for \$1,620, 1 for \$1,750; the C. C. C. Fire Hose Co., 2000 ft. 2½-in., 85c. per ft.; the Bi-Lateral Fire Hose Co., 2000 ft. 2½-in. and 800 ft. 1-in., \$1,530; American La France Fire Engine Co., 2000 ft. 2½-in. and 800 ft. 1-in., \$2,036.

**Bayonne, N. J.**—Combination chemical and hose wagon and chief's automobile wagon with chemical extinguisher and other attachments and the rebuilding of No. 2 engine: James Boyd & Brother, Philadelphia, combination chemical and hose motor car, chief's wagon, \$3,975; combination chemical and hose engine, \$5,675; Garford Co., Elyria, Ohio, combination hose and chemical wagon, \$4,700; Knox Automobile Co., Springfield, Mass., combination wagon, \$4,750; chief's automobile, \$1,400 to \$1,575, according to special equipments desired; American La France Fire Engine Co., rebuilding No. 2 engine, \$3,350; combination chemical and hose auto wagon, \$5,500; Combination Ladder Co., rebuilding No. 2 engine, \$2,499; combination chemical and hose automobile wagon, \$5,000 to \$5,300, according to special equipments desired; Pope Motor Co., Jersey City, combination chemical and hose auto wagon, \$5,000; chief's auto wagon, \$3,000; Robinson Fire Apparatus Co., St. Louis, combination chemical engine and hose auto wagon, \$5,500; R. & L. Co., chief's auto wagon, \$3,250; Theodore Smith & Sons Co., Jersey City, rebuilding No. 2 engine, \$2,745, with guarantee for three years; Webb Motor Fire Apparatus Co., combination chemical wagon, \$4,800; Ahren's Fire Engine Co., rebuilding No. 2 engine, \$3,300; The White Co., New York City, chemical combination auto wagon, \$5,000; chief's auto car, fitted with extinguisher tank, \$2,160 to \$2,600, according to special equipments; Stoddard-Dayton Auto Co., Philadelphia, chief's car, \$3,350, with chemical engine attachments; Victor Motor Truck Co., New York City, combination chemical and hose wagon, \$4,500; Clinton Auto & Garage Co., chief's car, \$1,850.

**Westfield, N. J.**—Furnish automobile fire apparatus combination chemical and hose wagon, Pope Hartford Company, \$5,250; Locomobile Company, \$6,000; Webb Motor Company, \$6,030; Combination Company, \$5,500, with pneumatic tires, \$200 additional; Robinson Fire Apparatus Company, \$5,500 and \$5,000; White Motor Car Company, \$5,300 and \$5,000; American LaFrance Company, \$5,500; Knox Auto Company, \$5,650 and \$4,750; last figure for fifty-gallon tank; same with pneumatic tires for \$5,500, and Garford Company, \$4,500; automobile pumping fire engine, American LaFrance Company, four cylinder, \$7,500; six cylinder, \$8,500; Knox Automobile Company, \$8,500; Webb Motor Car Company, \$8,500; Robinson Fire Apparatus Company, \$9,000.

**New York, N. Y.**—By Joseph Johnson, Fire Commissioner, for (a) furnishing and delivering two automobile hose wagons and (b) furnishing and delivering six chassis fitted to six high-pressure hose wagons: Mack Bros. Motor Car Co., 30 Church st., New York, (a) \$8,960, (b) \$27,348; James Boyd & Bro., Inc., 25th and Wharton sts., Philadelphia, Pa., (a) \$8,580; The White Co., Broadway and 62d st., New York, (b) \$27,500.

**Dallas, Tex.**—Furnishing 2,000 ft. of 2½ in. fire hose: Chicago Fire Hose Company, 90c. to \$1, with 5c. off of list; Fabric Fire Hose Company, 90c. to \$1.10; J. C. Van Ardsell & Co., 95c.; Boston Woven Hose and Rubber Company, 90c. to \$1; Eureka Fire Hose Company, 80c. to \$1.20.

**Norfolk, Va.**—Building fire department station house at Williams ave. and 12th st. Baker & Brinkley, of Norfolk, \$8,899; R. H. Richardson & Son, \$9,407.

## BRIDGES

**Pasadena, Cal.**—Bonds for \$200,000 have been voted for constructing bridge over the Arroyo Seco. The bridge will be built jointly by Los Angeles County and the City of Pasadena.—S. J. Van Ornum is City Engineer, and Herman Dyer, City Clerk.

**Chicago, Ill.**—Bids will soon be asked for bridge across the Chicago River, at Washington st.; estimated cost, \$360,000.—L. E. McGann is Commissioner of Public Works.

**Michigan City Ind.**—Commissioners decided to build joint bridge across the Kankakee River, 100 rods from new bridge. Will be known as the new Wanbaugh Bridge. Will be 130 ft. in length and cost about \$6,000.

**Manhattan, Kan.**—State Engineer Gearhart, of the Agricultural College, has prepared plans and estimates for 10 stone and concrete bridges, 7 of them to be built in Wabaunsee County, 1 in Republican County, one in Wichita County and 1 in Butler County.

**Lowell, Mass.**—Committee on Streets has voted to recommend loan of \$20,000 for a reinforced concrete bridge in Market st. over Merrimack Canal, and for repair of bridges in East Merrimack, Newhall, Jefferson and Aiken sts.

**Grand Rapids, Mich.**—Preliminary plans for new Leonard st. bridge have been made by Daniel B. Luton, an engineer of Indianapolis.

**Saginaw, Mich.**—A new 7-span bridge will be built at Johnson st.

**Atlantic City, N. J.**—Plans and specifications for new road and bridge at Graveltown have been prepared. Bids will be advertised for.

**Atlantic City, N. J.**—Repairs to Albany ave. bridge are to be made at once.

**Whitesboro, N. Y.**—Town has voted \$7,000 bonds to build bridge across Sauquoit Creek.

**Cincinnati, O.**—The City Engineer is stated to have submitted plans to Dir. Bd. Pub. Service for a concrete bridge to be constructed over railroad tracks at Ridgeway ave. at an estimated cost of \$13,000.

**Cleveland, O.**—Tentative plans are reported prepared for a high level bridge to be constructed over Cuyahoga River, between Superior ave., N. W., on the East Side and Detroit ave., N. W., on the West Side; probable cost, \$3,500,000.

**Cleveland, O.**—Bridge bonds amounting to \$150,000 are reported sold.

**Hamilton, O.**—Plans by Engineer L. A. Dillon have been accepted for erection of bridge over canal at Grand boulevard; cost, \$10,502.

**Kutztown, Pa.**—The contract for constructing a reinforced concrete arch bridge at Kutztown has been awarded to Carl R. Camp, Montrose, Pa., at \$10,638.

**Seattle, Wash.**—Board of Public Works has approved plans for reconstruction of Grand Boulevard bridge.

**Tacoma, Wash.**—All bids were rejected for two bridges over city waterway and Puyallup River. Will be readvertised.

## CONTRACTS AWARDED

**Redwood City, Cal.**—Building concrete bridge on Central ave., to Chas. A. Mott, Menlo Park, \$3,900.

**Santa Barbara, Cal.**—By County Board of Supervisors, of Santa Barbara County, to Poole & Rezenico for construction of a bridge across Loma Abaja Creek, \$4,464.

**Paducah, Ky.**—The contract for placing concrete piles for the concrete bridge over Island Creek, at Paducah, Ky., has been awarded to the Raymond Concrete Pile Company, New York and Chicago.

**Chisholm, Minn.**—To the Range Lumber Co. for the lumber for the bridge and sidewalk planned, 117,000 ft. for bridges and 50,000 ft. for walks.

**Hackensack, N. J.**—The Board of Freeholders confirmed the award of the following contracts: Concrete bridge at Dumont, F. R. Long Co., \$608; stone bridge at Allendale, J. H. McGee, \$545; stone bridge at Ridgewood, J. H. McGee, \$330; concrete culvert on 2d st., Hackensack, John W. Whaley, \$500; small bridge at Dumont, E. Watson, \$385; arch bridge at Demarest, C. Campanini, \$875; Ernest Abraham Saddle River rd. to Park Ridge, \$22,962.

**Perth Amboy, N. J.**—Martin Hansen, the lowest bidder for replanking the city's end of the Raritan River bridge, was awarded the contract by a resolution passed. He bid \$42.50 a thousand feet of yellow pine planking laid. Approximately 33,000 feet of planking is to be laid. Other bids were: Mads J. Dinesen, \$1,535, for 33,000 feet with a deduction of \$66 if old wood was given to him; Paul M. Janderup, \$59.50 per thousand feet of planking, \$65 per thousand feet of stringers and guard rails and \$20 per thousand feet for old material used again; General Contracting

& Engineering Co., \$59.50 per thousand feet; W. K. McGregor, \$1,925 for 33,000 feet; D. J. Currie, \$43 per thousand feet; Ira R. Crouse, \$44.45 per thousand feet.

**Harrisburg, Pa.**—By County Commissioners, repairing Middletown bridge to Stucker Bros. Construction Co., \$1,580; Elizabethtown bridge to Nelson Merydith Co., \$716.

**Humboldt, Tenn.**—A contract to construct the first steel bridge in Gibson County has been let by W. F. McRee, D. W. Dinwiddie and M. H. Holmes, representing the county court, and the bridge will span the middle fork of Forked River on the Brownsville Road near Cooper's Mill.

**Askeaton, Wis.**—To J. J. Roberts for erection of stone bridge.

## BIDS RECEIVED

**Sacramento, Cal.**—Building American River Bridge: Ross Construction Co., \$24,642; Murphy-Elwell Co., \$25,600; Clark & Henery, \$25,700; Jenkins & Wells, \$26,468; Hyde, Hodges & Co., \$26,544; Cotton Bros., \$27,600; Burrell Bridge & Construction Co., \$27,945; Missouri Bridge Co., \$30,960; Ely-Tibbets Construction Co., \$33,400; Clarence W. Swain, \$33,500; Thompson Bridge Co., \$34,500.

**Houston, Tex.**—Building Main st. viaduct: William P. Carmichael Co., of St. Louis: Time to complete, 286 days; whole bridge complete, using concrete railing and concrete piles, \$348,000; whole bridge complete using alternate scheme of reinforced concrete posts with galvanized iron railings and concrete piling, \$346,900; a deduction of \$9,600 is to be made if wood piling are used; whole bridge complete, with galvanized iron railing and concrete piles, \$304,400; for whole bridge complete using wood, \$296,700; J. C. Mardis Co., Des Moines, Ia.; 300 days; for whole bridge in its entirety, using concrete railing and concrete piles, \$377,500; for whole bridge complete using alternate scheme of reinforced concrete posts with galvanized iron railings and concrete piling, \$374,200; for whole bridge complete, using galvanized iron railing and concrete piles, \$340,400; for whole bridge complete, using galvanized iron railing and wood piles, \$334,400; American Construction Co., of Houston: 360 days; for whole bridge complete, using concrete railing and concrete piles, \$443,500; will deduct \$5,700 if wood piling are used; for whole bridge complete, using galvanized iron railing and concrete piles, \$400,500; for whole bridge complete, using galvanized iron railing and wood piles, \$396,000.

## MISCELLANEOUS

**Oxford, Ala.**—A new city hall is to be built. W. C. Gray is chairman of committee in charge.

**Red Bluff, Cal.**—County Supervisors are considering building jail.

**San Bernardino, Cal.**—The County Engineer is preparing plans and specifications for the construction of a large retaining wall to protect the bridge over the Santa Ana River on Orange st., between Redlands and Highland. Bids will be asked on a reinforced concrete and a concrete wall.

**San Jose, Cal.**—Board of Trade has requested to have City Engineer to report on approximate cost of a wharf and a railroad line to bay points.

**New Britain, Conn.**—Architects Unkelbach & Perry have completed plans for public comfort house to be erected at Walnut Hill Park.

**Coronado Beach, Cal.**—Plans have been submitted to the City Trustees for the construction of a reinforced concrete seawall along the ocean front; estimated cost, \$22,000. An 8-ft. boardwalk is provided for. Bids will be asked.

**Springfield, Ill.**—Bids for the \$40,000 Mildred Park bond issue have been opened. The bonds will be used for the purpose of improving the park located in the extreme southeast section of the city.

**South Bend, Ind.**—Ordinance has been passed creating public market.

**Carlisle, Ky.**—Council will soon advertise for bids for erection of City Hall opposite the court house; plans have been accepted.

**Boston, Mass.**—Louis K. Rourke, Commissioner Public Works, has asked for an appropriation of \$52,000 for repairs to the ferry slips at the East Boston ferries.

**Atlantic City, N. J.**—Ballot boxes will be purchased.

**Atlantic City, N. J.**—It is planned by the Board of Freeholders to have signs placed along country road from Abecorn to the Camden county line, which are to be illuminated with electric bulbs.

**New York, N. Y.**—It is reported that the plans of the Department of Docks and Ferries for the construction of a 500-ft. pier at the foot of 95th st., North River, have been completed.—Calvin Tomkins is Comr.

**Watervliet, N. Y.**—City is preparing to complete what is known as Dry River Improvements, which consist of constructing two large storage dams for impounding flood water flow and reinforced concrete storm water conduits to carry off inflow from storage dams. The Solomon-Norcross Co. and F. J. Keis, of Atlanta, Ga., are the engineers for these improvements; probable cost, \$165,000.

**Pittston, Pa.**—Architect Feeney, Scranton, will prepare plans for erection of proposed city hall on Broad st.

**Philadelphia, Pa.**—Mayor Reyburn sent a communication to Councils asking for an appropriation of \$25,000 for the construction of a pavilion at Lemon Hill, in place of the present one.

**Chattanooga, Tenn.**—Issuance of \$250,000 bonds by city has been authorized for park development.

## CONTRACTS AWARDED

**Ashville, Ala.**—J. N. Glenn, local contractor, has secured contract to dredge and enlarge city spring. The contract calls for the following: There is to be 1,300 cu. yds. of dirt removed on the city's property and 300 cu. yds. on Mayor Izner's portion. The diameter of the lake is to be 178.2 ft. The circumference is to be 56. A cement wall 18 to 24 in. high will be built around the lake. A gravel walk 4 ft. wide will be constructed around the lake, making it one of the most beautiful in this part of the State. The plans which the city is to go by were submitted by F. G. Lee, county surveyor of Etowah County.

**Red Wood City, Cal.**—Town Hall, to cost \$10,850, to R. A. McLean, of San Francisco.

**Watervliet, N. Y.**—Channey st., to P. N. Nealon, \$1,750 per year; collecting ashes and garbage, to Frank Sipperly, \$2,920; both contracts to run for two years.

**Akron, O.**—The contract for the erection of a public comfort station at Main and Market sts. has been awarded by the Board of Control to Hunt & Wigley, Akron, at \$7,470.

**Middlesboro, Tenn.**—The contract has been awarded to L. A. Galyon & Co., Knoxville, for the construction of the proposed city hall building. The following bids were received: D. P. Phipps, of Newport News, Va., \$46,900; L. A. Galyon & Co., Knoxville, \$46,034; G. L. Hunt & Sons, Middlesboro, \$44,987.

**Toronto, Ont., Can.**—Contract has been awarded to Miller & Gibson, of Toronto, by the Board of Control for the construction of a dock in Ashbridge Bay, at about \$119,900. C. H. Rust is City Engineer.

## BIDS RECEIVED

**Erie, Pa.**—Building garbage incinerating plant, bids opened July 3: Decarie Incinerating Co., Hopkins, Minn., \$42,275 on complete plant of 50 tons in 24 hours, two units, as follows: 2 furnaces, \$23,000; brick building, \$9,850; concrete approach, \$3,850; brick chimney, \$4,875, 6 ft. x 150 ft.; electric light equipment, \$700; cost of operation, 50 cts. per ton; guaranteed annual cost of operation plus 10 per cent of first cost, \$11,977.50. W. K. Herbert, McKeesport, \$30,000 on complete plant of 50 tons in 10 hours, 2 units; cost of operation per ton, 40 cts.; annual repairs \$50; guaranteed annual cost of operation plus 10 per cent of first cost, \$9,400. Dixon Engineering Co., Toledo, O., No. 1, \$32,740 on complete plant of 30 tons in 10 hours, 2 units, with direct draft and without storage chamber, as follows: 2 furnaces, \$13,000; brick building, \$16,200; steel building, \$15,600; brick chimney, \$5,300; concrete chimney, \$3,540, 6 ft. x 150 ft.; cost of operation, 38 cts. per ton, annual repairs, \$200; guaranteed annual cost of operation plus 10 per cent of first cost, \$9,364; No. 2, \$38,000 on complete plant of 25 tons in 10 hours, 2 units, with storage and drying chamber, as follows: 2 furnaces, \$16,800; brick building, \$17,660; steel building, \$17,060; concrete chimney, \$3,540; brick chimney, \$5,300; cost of operation, 27 cts. per ton, annual repairs, \$200; guaranteed annual cost of operation plus 10 per cent of first cost, \$8,185; No. 3, \$65,000 on complete plant of 50 tons in 10 hours, 2 units, with storage and drying chamber, as follows: 2 furnaces, \$29,500; brick building, \$31,960; steel building, \$30,960; brick chimney, \$5,300; concrete chimney, \$3,540, 6 ft. x 150 ft.; cost of operation, 27 cts. per ton, annual repairs, \$400; guaranteed annual cost of operation plus 10 per cent of first cost, \$11,085. Morse-Boulger Co., New York, \$37,500 on complete plant of 50 tons in 10 hours, 2 units, as follows: 2 furnaces, \$15,500; brick building, \$17,000; brick chimney, 5 ft. v 150 ft., \$5,000; cost of operation, 50 cts. per ton, annual repairs, \$200; guaranteed annual cost of operation plus 10 per cent of first cost, \$11,700. H. R. Heinicke, Philadelphia, radial hollow brick chimney, 5 ft. x 156 ft., complete, \$4,225.



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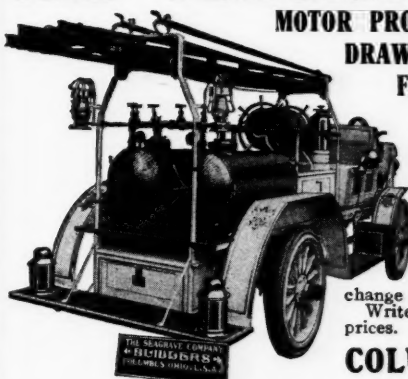
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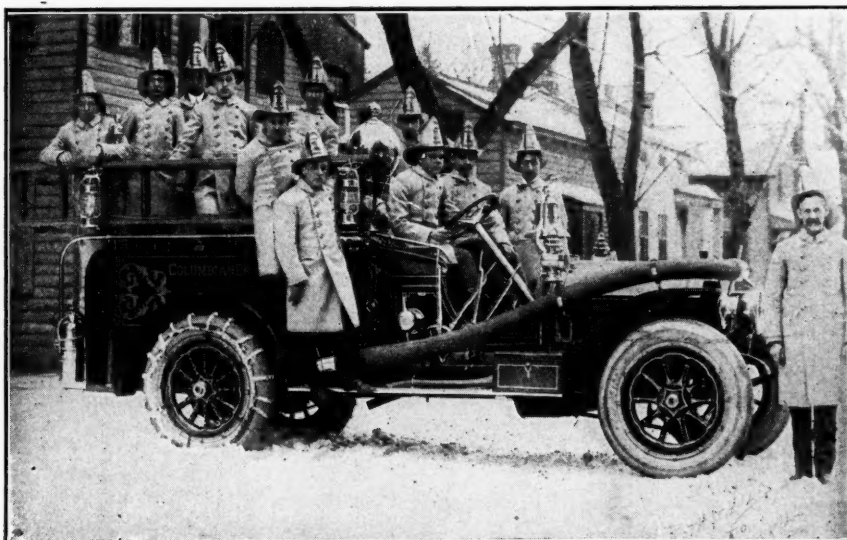


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## TOO LATE FOR CLASSIFICATION

## BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>STREET IMPROVEMENTS</b>				
New Jersey	Rutherford	July 14	Laying 6-in. macadam, 4 streets.	F. A. Stedman, Boro. Clerk.
Minnesota	Duluth	July 14, 10 a.m.	Grading and improving alley.	O. G. Olson, Pres. Bd. Pub. Wks.
Ohio	Girard	July 14	Macadamizing 4 roads, Liberty township.	J. H. Howells, Clerk.
Ohio	Dayton	July 15	Graveling several streets and laying cement sidewalks.	W. A. Budroe, Secy. Dept. P. Serv.
Ohio	Columbus	July 17	Constructing sidewalks on numerous streets.	H. S. Holton, Dir. Pub. Service.
Ohio	Youngstown	July 17, 1:30 p.m.	Paving with brick slag or limestone about 4 miles road.	Frank Agnew, Secy. Co. Comrs.
Michigan	Monroe	July 17	Paving with concrete, cost \$6,930.	F. M. Kressbach, City Clerk.
New York	Albany	July 17, 3 p.m.	Paving with brick block; repairing sidewalks, building basins, laying house drains and water services.	Isadore Wachsman, Secy. Bd. Cont.
Ohio	Hamilton	July 18, noon	Paving with asphalt, brick bitulithic or bituminous macadam and creosoted block.	C. M. Robertson, Clk. D. Pub. Serv.
New York	N. Brighton	July 18	Paving with granite block or Hassam pavement 4,950 sq. yds.; 2,530 lin. ft. bluestone curbing.	George Cromwell, Boro. Pres.
Minnesota	Lynd	July 18	Improving one mile road.	E. S. Shepard, County Auditor.
Kansas	Ottawa	July 19, 5 p.m.	Paving 6,860 sq. yds. brick; 4,790 lin. ft. conc. curb and gutter.	W. T. Wood, Mayor.
Pennsylvania	Pittsburg	July 20, noon	Grading, constructing masonry, grade separation.	R. Trimble, Ch. Engr. C. & P. Rwy.
Ohio	Massillon	July 21	Building four culverts.	Commissioner Public Works.
Minnesota	Minneapolis	July 24	Macadamizing road 41.	A. P. Erickson, County Auditor.
New York	Newburgh	July 25	Paving with old and new granite blocks or bricks.	W. J. Blake, Jr., City Engineer.
Indiana	Fort Wayne	July 27, 7:30 p.m.	Grading and paving alleys and laying sidewalk.	F. T. Benoi, Pres. Bd. Pub. Wks.
Ontario, Can.	Welland	July 30	Constr. asphalt block, brick taralithic or bitulithic pavement.	G. R. Body, Town Clerk.
Ohio	Bowling Green	July 31	Macadamizing highway.	F. W. Toan, County Auditor.
Florida	Jacksonville	Aug. 4	Paving with shell foundation and gravel top.	County Commissioners.
Ohio	Bowenston	Aug. 5	Paving 3 streets with brick.	W. F. Utterbeck, Village Clerk.
Ohio	Cleveland	Aug. 13	Paving several streets with brick.	A. B. Lea, Dir. Pub. Service.
<b>SEWERAGE</b>				
Wisconsin	Port Washington	July 17, 7 p.m.	Constructing 15,565 ft. 10 to 24-in. clay pipe.	W. B. Krause, City Clerk.
Minnesota	Ely	July 18, 8 p.m.	Constr. trunk sewers and sedimentation tanks; 1,005 ft. 38-in. concrete sewer pipe; 300 ft. 40-in. concrete pipe; 3,600 ft. 10- to 15-in. clay pipe.	I. Wisted Jr., City Clerk.
Pennsylvania	Dunmore	July 18, 8:30 p.m.	Constructing sewers in Fourth Ward.	T. F. O'Hara, Boro. Secy.
Massachusetts	Pittsfield	July 19	Constructing 200 cu. yds. masonry; 1,500 ft. 8 and 12-in. clay pipe; 4,600 lin. ft. 16 to 24-in. c. i. pipe; 16,000 lin. ft. piles.	Board Public Works.
Illinois	Bloomington	July 20	Constructing 4,900 ft. 6 to 15-in. clay pipe.	E. Folsom, City Engineer.
Minnesota	Biwabik	July 20, 8 p.m.	Constructing sewer mains.	J. E. Reilly, Village Clerk.
Maryland	Cumberland	July 21, 2 p.m.	Constr. 1,950 ft. clay pipe and 679 ft. brick sewers.	W. M. Eichelberger, Com. Sts.
<b>WATER SUPPLY</b>				
New York	Albany	July 17, 3 p.m.	Remodeling and repairing 3 Allis triple expansion pump engines.	Isadore Wachsman, Secy. Bd. Cont.
New York	Yonkers	July 17	Driving 6-in. tubular wells and appurtenances.	Secretary Mahony, Bd. Pub. Wks.
Minnesota	Biwabik	July 20, 8 p.m.	Constructing water mains.	J. E. Reilly, Village Clerk.
Pennsylvania	Glen Rock	July 22, 4 p.m.	Furn. deep well pump, gaso. eng. build. house and relin. reservoir.	Borough Clerk.
California	San Jose	July 24, 11 a.m.	Furnishing 8,000 ft. 2-in. and 1,800 ft. 4-in. pipe.	Board Supervisors.
<b>LIGHTING AND POWER</b>				
Minnesota	Tower	July 18, 3 p.m.	Constr. concrete dam and power house; electrical apparatus; hydraulic apparatus; transmission line. Four separate cont.	Charles Lang, City Recorder.
<b>BRIDGES</b>				
Minnesota	Marshall	July 18	Constructing bridge 60 ft. span.	E. S. Shepard, County Auditor.
Alabama	Birmingham	July 21, noon	Constructing numerous small bridges.	J. W. Gwinn, County Engr.
Florida	Tampa	Sept. 6	Constructing Lafayette St. bridge, concrete steel.	Board Public Works.
<b>MISCELLANEOUS</b>				
Louisiana	Lake Charles	Aug. 8	Building City Hall; cost \$45,000.	City Clerk.
Minnesota	Duluth	July 14, 10 a.m.	Building addition to timber dock.	O. G. Olson, Pres. Bd. Pub. Wks.

## STREET IMPROVEMENTS

**Tampa, Fla.**—Zack st. will be paved with vit. brick at cost of about \$7,734.

**Ottawa, Ill.**—One block of roadway in western part of city has been experimentally oiled. Council will have more done.

**Virginia, Ill.**—City is considering construction of 10,000 sq. yds. brick pav. on 5-in. concrete foundation; also about 6,000 lin. ft. concrete curb and concrete curb and gutter.—John G. Pratt, Public Engineer.

**Atchison, Kan.**—City Engineer S. K. McCrary has been authorized to prepare plans and specifications and the City Clerk to advertise for bids for the following improvements: Grading, curbing and paving Kearney st. from 7th st. to 12th st., and Wagner Boulevard from "N" st. to "P" st. Approximate quantities are 8,372 lin. ft. of curbing 12,763 sq. yd. of brick paving and two concrete culverts; cost of each about \$2,000.

**Lawrence, Kan.**—Ordinance has been passed authorizing paving of various streets.—F. D. Brooks is City Clerk.

**Leavenworth, Kan.**—Special taxing ordinance is being drawn to pay for paving for which bids will be advertised.

**Lexington, Ky.**—Effort is being made by property owners to have East Short st. widened and better sidewalks laid.

**Grand Rapids, Mich.**—Bids will be received until 3 p. m. July 31 for \$108,000 street improvement bonds. Jas. Schriner, City Clerk.

**Trenton, N. J.**—Council is considering paving of Oak Lane with Filbertine and Roebbling ave. with asphalt.

**Charlotte, N. C.**—Citizens have voted \$50,000 bonds for street improvements.

**Akron, O.**—Council has decided to improve Johnson, Water, Second and Maman sts.—W. T. Sawyer, Mayor.

**Toledo, Ohio.**—City Engineer Tonson has been instructed by Public Improvements Committee of Council to prepare plans for repaving of Collingwood ave. from Central ave. to Cherry st.

**Trappe, Pa.**—Town will issue \$1,500 bonds for macadamizing.

**Galveston, Tex.**—County Judge G. E. Mann has made report on surfacing causeway and court has authorized County Auditor to advertise for bids.

**Richmond, Va.**—The Board of Supervisors of Henrico County rejected all bids for improvements to the Newmarket road, it being decided that the figures submitted in all proposals were too high.

## CONTRACTS AWARDED

**Rome, Ga.**—Parkway on Broad st. to Jamison and Hollowell, Montgomery, 4,300 sq. yds. of surface and 2,000 yds. of track, vit. brick, \$2.08 per sq. yd. for surface and \$2.18 for track; North Broad st., 14,000 yds. of surface and 350 yds. of track, wood block, and 5th ave., 7,550 yds. of surface and 650 yds. of track, to Creosoted Wood Block and Paving Co., Gulfport, Miss., \$2.25 per sq. yd.; South Broad st. to Southern Asphalt & Construction Co., \$1.83 per sq. yd. for surfacing 10,300 yds. with asphalt macadam; \$2.30 for 3,750 yds. of track, which will be paved with vit. brick.

**Springfield, Ill.**—Paving Pasfield st. to Capital City Concrete Construction Co., \$1.75 per sq. yd. for asphalt concrete pavement; \$1.68 for brick pavement, 54c per lin. ft. of concrete curb, and 55c for sandstone curb.

**Evansville, Ind.**—To Edward Sonntag for building First Ave. road to connect with Old Camp Ground road; \$5,935.

**Evansville, Ind.**—To Western Construction Co. for improvement of Madison Ave. Asphalt will be material.

**Muncie, Ind.**—Building Hinton road, to John Lambert, \$3,749; fuel gravel road to Frank Hines, \$3,950; extension of Kelgore ave. and Yorktown pike to Wm. Birch, \$11,975.54.

**Portland, Ind.**—To L. O. Bearss & Co., Peru, for construction of the O. S. Buckingham stone road in Bearcreek township, \$3,699.

**Maquoketa, Ia.**—For 17 blocks of brick paving to Mich. Ford, Cedar Rapids, \$40,-

120; 3 blocks of wood block to Dearborn & Jackson, Cedar Rapids, \$9,458.

**Havre de Grace, Md.**—Paving streets with asphalt macadam to Havre de Grace Construction Co., \$11,500.

**Omaha, Neb.**—Paving 9th st. to Chas. Fanning.

**Trenton, N. J.**—Paving 2d st. with Texaco to United Paving Co., Atlantic City, \$1.59 sq. yd.; total, \$37,116; Genesee st. with Filbertine to J. C. Rock, Philadelphia, \$1.49; to same for Ferry st. with Filbertine, \$9,136.85; to McGovern Paving Co., city, for paving following streets with Filbertine, \$1.53 per sq. yd.; Hoffman ave., \$4,006.50; Mercer st., \$3,397.50; Charles st., \$2,529.50; Allen st., \$3,208.75; Prospect st., \$2,380.60; to same for paving Berhn st. with macadam, about \$900; Quarry ave. with Belgian block to Rose Construction Co., lowest bidder.

**Syracuse, N. Y.**—To the Central City Paving Co., lowest bidder, by Board of Contract and Supply for paving with Trinidad asphalt Westcott st. from East Genesee st. to Lexington ave., and with vitrified brick Elliott st. from Dudley to South Geddes, also Bradley st. to John T. Roberts for grading full width Annetta st. from Summit Ave. to Craddock st., \$950.

**Cincinnati, O.**—Paving Eastern Ave. from Archer st. to end of the present granite, to the Kirchner Construction Co.; wood blocks will be used between the car tracks and granite blocks outside; about \$74,000. Improvement of Melish ave. with asphalt from Highland ave. to Reading road, to A. J. Henkel & Bro., \$23,131.60, and for the improvement with asphalt of Auburn ave. from Auburndale place to Vine st., to the Kirchner Construction Co., \$9,010.50.

**Shamokin, Pa.**—Paving streets, to Peter Barr, Belgian block, using White Haven stone jar, \$2.34 per sq. yd.; if cement coating is used, at 10 cts. per yd.; brick paving, Mack brick, per sq. yd., \$2.03; Pinegrove brick, per sq. yd., \$1.89; curbing, per lin. ft., 5x24, 76 cts. and Locomotiv or White Haven, 3x30 per lin. ft., 60 cts.; other bidders: G. W. Rockwell, Sunbury,



## Index to Advertisements

<b>A</b>	Acme Equipment & Engineering Co. ....	29	Howe Engine Co. .... o.a.m.	28
	Aetna Engineering Bureau. ....	24	Huber Mfg. Co. ....	28
	Allis-Chalmers Co. ....	33	<b>I</b>	
	Alvord & Burdick. ....	24	Indian Refining Co. ....	9
	American Asphaltum & Rubber Co. ....	17	International Association of Municipal Electricians. .... o.a.m.	
	American Conduit Co. ....	26	Iroquois Iron Works. ....	
	Amer. Water Softener Co. o.a.m.		<b>J</b>	
	Artesian Well & Supply Co. o.a.m.		Johns-Manville Co., H. W. ....	14
	Austin Drainage Excavator Co. ....	14	<b>K</b>	
	Austin-Western Co. ....	31	Kelly-Springfield Road Roller Co. ....	24
	Ayer & Lord Tie Co. ....	8	Kimberly, A. Elliott. ....	31
<b>B</b>			Kindling Machinery Co. ....	2
Barber Asphalt Paving Co. ....	4-5		Knickerbocker Co., The. ....	2
Barr Clay Co. .... o.a.m.			Koehring Machine Co. ....	
Barrett Mfg. Co. ....	1	<b>L</b>		
Bessemer Limestone Co. ....	12	Lamson, John, Jr. ....	10	
Bissell, The F., Co. ....	12	Leadite Co., Inc. ....	32	
Blaw Collapsible Steel Centering Co. ....	14	Lederle & Provost. ....	24	
Blome, Rudolph S., Co. ....	8	Lewis & Kitchen. ....	24	
Bond, Harold L., Co. ....	25	Lock Joint Pipe Co. ....	25	
Bowser, S. F., Co. ....	33	Luitweiler Pumping Engine Co. ....	36	
Boyd, James, & Brother, Inc. ....	24	Lynchburg Foundry Co. ....	33	
Brownell, E. E. ....	35	<b>M</b>		
Buckeye Engine Co. ....	35	McAvoy Vitified Brick Co. o.a.m.	24	
Buff & Buff Co. ....	26	McCullough, Ernest. ....	24	
Buffalo Engine Co. ....	36	McWane Pipe Works. ....	33	
Buffalo Meter Co. ....	6	Marsh Co. ....	2	
Buffalo Steam Pump Co. ....	24	Menzies Street Cleaner Co. ....	23	
Buffalo Steam Roller Co. ....	24	Merritt & Co. ....	11	
Burgess & Long. ....	24	Metropolitan Paving Brick Co. ....	32	
Burns & McDonnell. ....	24	Modern Iron Works. ....	12	
<b>C</b>		Monarch Typewriter Co., The. ....	24	
Caird, Jas. M. ....	24	Morse, W. F. ....	12	
Cameron Septic Tank Co. ....	24	Moss Photo-Engraving Co. ....	12	
Canfield, R. H. ....	24	Mueller, H., Mfg. Co. ....	34	
Carpenter, C. N., Supply Co. ....	30	Municipal Engineering & Cont. Co. ....	14	
Case, J. I., Threshing Machine Co. ....	30	<b>N</b>		
Central Westrumite Co. ....	7	National Paving Brick Mfgs. Assoc. ....		
Ceresit Waterproofing Co. ....	32	<b>O</b>		
Chicago Bridge & Iron Works. ....	32	Ohio Road Machinery Co. ....	30	
City Wastes Disposal Co. ....	24	Ohio Tractor Mfg. Co. ....	28	
Clay Products Publicity Bureau, The. ....	13	Okonite Co. .... o.a.m.		
Clearfield Brick Mfg. Co. ....	7	<b>P</b>		
Clearfield Clay Working Co. o.a.m.		Pacific Flush Tank Co. ....	14	
Cochrane Chemical Co. ....	32	Parmley & Nethercutt. ....	27	
Collins, Chas. E. ....	24	Pease, The C. F., Co. ....	35	
Columbian Iron Works. ....	36	Pease, F. A., Engineering Co. ....	24	
Concrete Form and Engine Co. ....	14	Peerless Rubber Co. .... o.a.m.		
Continental Asphalt & Equipment Co. ....	6	Pennsylvania Salt Mfg. Co. ....	32	
Continental Hotel. ....	10	Pittsburg Meter Co. ....	36	
Cummer, F. D., & Co. ....	10	Pitometer Co. ....	34	
<b>D</b>		Port Huron Engine & Thresher Co. ....	29	
Decarie Incinerator Co. ....	26	Potter, Alexander. .... o.a.m.	24	
Deckman-Duty Brick Co. o.a.m.		Potts, Clyde. ....	24	
Destructor Co., The. ....	26	Purinton Paving Brick Co. o.a.m.		
Diamond Rubber Co. ....	24	<b>R</b>		
Dow & Smith. ....	24	Rex, Geo. M. ....	24	
Duluth Engineering Co. ....	24	Rife Engine Co. ....	34	
Dunn Wire-Cut Lug Brick Co. ....	28	Riggs House. ....		
Dunning, W. D. ....	10	Roberts Motor Co. ....	10	
Dustolene. ....	10	Robeson Process Co. ....	6	
<b>E</b>		Ruggles-Coles Engineering Co. ....	6	
Early, Jos. N. ....	17	<b>S</b>		
Eastern Mfg. Co. ....	36	Sanitary Street Flushing Machine Co. ....	29	
East Iron & Machine Co. ....	30	Seagrave Co. ....	19	
Electric Railway Equipment Co. ....	27	Servus Rescue Equipment Co. ....	17	
Engineering Agency. ....	72	Sieben System of Sanitation Co. ....	26	
Etnyre, E. D., & Co. ....	21	Solvay Process Co. ....	7	
Eureka Fire Hose Mfg. Co. ....	10	Speare's Sons Co., The Alden. ....	10	
Eureka Machine Co. ....	8	Springfield Sanitary Drinking Fountain Co. ....	19	
Evans & Howard Fire Brick Co. ....	8	Standard Asphalt & Rubber Co. ....	3	
<b>F</b>		Standard Oil Co. ....	11	
Fabric Fire Hose Co. .... o.a.m.		Standard Scale & Supply Co. ....	33	
Fibre Conduit Co. ....	35	Standard Water Meter Co. ....	21	
Filbert Paving & Construction Co. ....	21	Star Electric Co. ....	12	
Firestone Tire & Rubber Co. ....	27	Stary & Sons. ....	12	
Flour City Ornamental Iron Wks. ....	34	Steel Protected Concrete Co. ....	14	
Ford Meter Box Co. ....	24	Stewart, W. H. ....	11	
Fort Wayne Electric Works. ....	24	Studebaker, The Corporation. ....	28	
Fuller, Geo. W. ....	24	Syracuse Chilled Plow Co. ....	28	
<b>G</b>		<b>T</b>		
Gamewell Fire-Alarm Tel. Co., The. .... e.o.w.	21	Texas and Pacific Coal Co. ....	6	
Gamon Meter Co. ....	33	Texas Co., The. ....	6	
Gardner Crusher Co. ....	35	Thornton Fire Brick Co. .... o.a.m.		
General Electric Co. ....	70	Thurber Brick Co. .... o.a.m.	12	
Glauber Brass Mfg. Co. ....	28	Tide Water Iron Works. ....	32	
Globe Asphalt Co. .... o.a.m.	21	Tiffin Wagon Co. ....	30	
Globe Foundry Co. ....	28	Tippett & Wood. ....	30	
Goodrich, B. F., Co. ....	21	Topping, Howell. ....	30	
Good Roads Improvement Co. ....	10	Troy Wagon Works Co. ....	26	
Good Roads Mch. Co. ....	30	<b>U</b>		
Goulds Manufacturing Co., The. ....	35	Union Clay Products Co. ....	34	
Gurley, W. & L. E. ....	35	Union Water Meter Co. ....	23	
<b>H</b>		Universal Road Machinery Co. ....	25	
Hains-Weaver Concrete Mixer Co. ....	35	United States Marine Signal Co. ....	35	
Hartford Rubber Works Co. ....	24	United States Tire Co. ....	35	
Hatton, T. Chalkey. ....	24	U. S. Wood Preserving Co. ....	35	
Hauer, Daniel. ....	24	<b>V</b>		
Haywood Wagon Co. ....	24	Van Dorn Iron Works. .... o.a.m.		
Herring & Gregory. ....	32	<b>W</b>		
Hetherington & Berner. ....	33	Wadsworth Stone & Paving Co. ....	6	
Hill-Tripp Pump Co. ....	12	Walsh, Thos. J. ....	24	
Holzbog, Geo. H., & Bro. ....	6	Warner-Quinlan Asphalt Co. ....	3-7	
Hooke, Robert. ....	25	Warren Bros. Co. ....	30	
Hotchkiss Lock Metal Form Co. ....	32	Wassall Brick Co. .... o.a.m.	7	
Hotel Cumberland. ....	32	Watson Wagon Co. ....	30	
Howard, J. W. .... o.a.m.		Webb Motor Fire Apparatus Co. ....	7	
Hotel Victoria. ....		Western Gardening & Forestry Co. ....	24	
		Western Valve Co. .... e.o.w.	24	
		Wise & Watson. ....	8	
		Wyckoff Pipe & Creosoting Co. ....	8	
		<b>Y</b>		
		Yellow Pine Manufacturers Ass'n	8	

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Belgian block, per sq. yd., \$2.71; Mack block, \$2.31; Pinegrove block, \$2.14; Auburn block, \$2.13; Watertown block, \$2.12; Fiss & Christiano, Shamokin, Watertown brick, per sq. yd., \$2.22; Belgian block, \$2.22; White Haven brick, \$2.22; curbing, 78 cts. per lin. ft.; Coryell Construction Co., Williamsport, Watertown block, per sq. yd., \$2.10; Auburn block, \$2.12; Pinegrove block, \$2.15; Mack block, \$2.36; Belgian block, \$2.68. Add 25 cts. per yd. to Belgian block for grant filler instead of sand filler. D. J. Jones and Fred Kumer, Shamokin, Watertown and Auburn brick, \$1.99; cement curbing, 56 cts. per lin. ft.; stone curbing, 77 cts. per lin. ft.; Belgian block, \$2.77 per sq. yd. laid in sand.

Dallas, Tex.—Bitulithic paving on Columbia ave., from Carroll to Beacon, by City Commissioners, to the Texas Bitulithic Co., \$62,142.30. Of this the city's part will be \$20,815.75.

Walkerville, Ont., Can.—To Thos. Chick, Windsor, to pave streets at cost of \$79,000.

#### BIDS RECEIVED

Youngstown, O.—Low and high bidders for city jobs to be awarded in the near future are as follows: Erie st. grading, E. J. Kane, \$3,185.50; S. H. De Groodt, \$4,749; Milton st. sewer, James Horan, \$777.40; S. D. De Groodt, \$957.50; Glenwood ave. paving, McKinnie st. to city limits, S. H. De Groodt, \$13,853.10; M. P. Connelly & Son, \$14,878.20; Glenwood ave. paving, Mahoning ave. to McKinnie st., S. H. De Groodt, \$21,241; Colluci Brothers, \$23,060.50; Cleveland st. paving, J. S. McCarron, \$8,834.60; Mullin & Quinn, \$9,482.40.

#### SEWERAGE

Henry, Ill.—Town is being surveyed for sewerage system.

Grand Rapids, Mich.—Bids will be received until 3 p. m. July 31 for \$45,000 sewer construction bonds. Jas. Schriner, City Clerk.

Lincoln, Neb.—City Engineer Dobson has completed plans for constructing storm sewers in N. 26th, B and N sts.; cost about \$40,000.

Tecumseh, Neb.—Citizens will vote July 25 on \$7,000 bonds to construct sewerage mains.

Matteawan, N. Y.—Citizens have voted to expend \$60,000 to extend sewer and water systems.

Boydton, Va.—Will improve sewerage system.

Barbourville, W. Va.—A complete sewerage system will be installed during summer and autumn. \$13,000 bonds will be issued.

#### CONTRACTS AWARDED

Orange, Cal.—Construction of sewer system to the California Ornamental Brick Co., Central Bldg., Los Angeles, \$7,854; other bidders: Geo. Wujacich, \$8,383; P. Tomich and B. C. Nichols, \$8,419; Geo. Benson, \$10,187; A. C. Hughes, \$10,387; W. J. Eggert, \$10,695, and Westlake Construction Co., \$12,376.

Lexington, Ky.—Construction of sewers: South Upper st., to Thos. O'Day; North Upper st., to Central Co.; West Maxwell st., to Jas. Melvin; East Maxwell and other streets to A. G. McGregor.

Fairmont, Minn.—To Turner Improvement Co., Des Moines, Ia., for pipe sewers, \$9,732.

Schenectady, N. Y.—To John Allen for constructing sanitary sewer in Van Vranken ave. and Manhattan st.

Syracuse, N. Y.—To James Swift, 15-in. pipe sewer in Schuyler st. from Willis ave. to Myrtle st.: \$1,896.65.

Philadelphia, Pa.—Construction of inlets to and for branch sewers to Donati Delsie, Jos. Perna, David McMahon, Vincent Jafolla, Jos. Conkling, Wm. A. Ryan, Emille Pascuzzi, Pat Durkin, Peter Ellis, Alfonso Perna, Jos. Lombardi, Richard Bennis, Jno. A. Robb, Fred T. Buckius, Robt. Higgins, R. J. Bennis, Jos. Moss, Nicholas Cannol and Jno. T. Connor; total amount \$200,000.

#### WATER SUPPLY

Council Bluffs, Ia.—New electric water pump will be purchased.

Chapman, Kan.—Installation of water works is being considered.

Leavenworth, Kan.—City is planning to take over the privately owned water plant.

Grand Rapids, Mich.—Bids will be received until 3 p. m. July 31 for \$200,000 sewer filtration bonds. Jas. Schriner, City Clerk.

L'Anse, Mich.—Town Council has decided to increase water supply system.

Omaha, Neb.—Citizens will vote Aug. 2 on \$8,250,000 bonds for waterworks.

Upland, Neb.—Citizens have voted proposed water works bonds.

Tecumseh, Neb.—Citizens will vote July 25 on \$15,000 bonds to extend water system.

Matteawan, N. Y.—Citizens have voted to expend \$60,000 to extend water and sewer systems.

Charlotte, N. C.—Citizens have voted \$350,000 bonds to secure water from Catawba River, 15 miles distant.

Oxford, Ohio.—Bids will be received July 31, noon, for \$4,000 bonds or extension of water works.—D. P. Beaton, City Clerk.

Hermiston, Ore.—J. T. Whistler, Portland, and W. B. Hinkle, of Hermiston, are preparing plans for water works; cost about \$20,000.

White Lake, S. D.—Missouri Valley Eng. Co., Western National Bank Bldg., Mitchell, has been selected to design and superintend construction of water works; cost about \$16,000.

Grafton, W. Va.—Riggs & Sherman Co., of Toledo, has completed preliminary report for improvements to municipal water works.

#### CONTRACTS AWARDED

Millikin, Colo.—Constructing water system to Geo. Sethman, Denver.

Baltimore, Md.—Furnishing and installing 30,000,000-gal. vertical, triple expansion pump, boilers, etc., for Mount Royal pumping station, to the Bethlehem Steel Co., of South Bethlehem, Pa.; \$114,000 for pump of 60-in. stroke.

Fairmont, Minn.—Constructing 17 blocks of water main to J. W. Turner Improvement Co., Des Moines, Ia., \$5,850.

Brainard, Neb.—Erection of waterworks and electric light system to the Alamo Engine & Supply Co., Omaha.

Ossipee, N. H.—To G. Furrullo, of Boston, Mass., for pipe laying for the Ossipee Water & Electric Co.; 6 and 8-in. pipe, per ft., 18c; 2-in. pipe, 14c; rock excav., per cu. yd., \$2.48; setting hydrants, each, 90c, and setting gates, each, 33c; C. Millar & Son secured contract for furnishing pipe, \$22.90 per ton.

Crosswicks, N. J.—Installation of water supply for Crosswicks Water Co. to Thos. J. McGovern, Trenton, N. J.

#### LIGHTING AND POWER

Los Angeles, Cal.—Pacific Light & Power Co. has been granted franchise to construct and maintain electric light wires through county from northwestern part of city through Ramona Acres.

San Bernardino, Cal.—F. A. Worthley, Superintendent of Riverside's municipal lighting and power plant, has applied to Council for franchise for power lines covering streets; proposes to install plant capable of producing 10,000 h.p.

Ft. Collins, Colo.—Council has instructed the City Engineer to make surveys and estimates for municipal electric-light plant.

Chambersburg, Pa.—It is estimated that from \$20,000 to \$30,000 will be required to put the light plant in proper shape.

#### CONTRACT AWARDED

Kendallville, Ind.—To the Western Gas Co., of Fort Wayne, to furnish supply of boulevard lighting posts, which will be used in illuminating business section.

Yonkers, N. Y.—To Thomas J. McCormick to furnish two 225 h.p. boilers for low service water station for \$6,100; other bidders were: Erie City Iron Works, \$6,250;

Heine Boiler Co., \$7,356; Almirall Co., \$9,235 and Keeler & Co., \$6,300; Standard Cast Iron Co. for 30-in. pipe at \$21.75 ton and \$47.50 for special fittings; The Rensselaer Valve Co. for 5 24-in. valves, \$148.80 per valve.

#### FIRE EQUIPMENT

Atchison, Kan.—Fire station to cost \$9,000 will be erected at 13th and Commercial sts.; following motor-driven fire apparatus has been ordered purchased: one 90-h.p. 6-cyl. pumping fire engine of 750 gal. capacity per minute, and one 90-h.p. 6-cyl. combination hose and chemical wagon carrying 2,000 ft. of hose and 50-gal. chemical tank. S. K. McCrary, City Engineer.

#### BRIDGES

Waterloo, Ia.—New ordinance has been passed authorizing erection of four bridges; bids under former ordinance returned unopened.

Natchitoches, La.—Police Jury has recommended erection of traffic bridge across Cane River at Bermuda; cost, \$6,500.

Duluth, Minn.—Bridge may be built over Miller's creek, where Piedmont ave. joins the boulevard and Hermantown cut-off road crosses.

#### CONTRACT AWARDED

Lawrence, Kan.—Building three bridges by County Commissioners to B. Williams: Limit st. bridge, \$1,995; Little Stranger bridge, \$1,824; Tonganoxie bridge, \$2,198.

#### MISCELLANEOUS

Montgomery, Ala.—Board of Commissioners has taken under advisement question of establishing four parks.

Macon, Ga.—County Commissioners have decided to erect proposed 3-story \$30,000 jail adjoining courthouse.

Logansport, Ind.—Commissioners of Cass County, now in session, have decided to ask County Council to appropriate sufficient money to buy 24 voting machines.

Mt. Vernon, Ind.—Bids on voting machines have been rejected by the Commissioners.

Richmond, Ind.—County Council has appropriated \$6,000 for building insane ward.

Houma, La.—C. W. Bocage has completed plans for fireproof sanitary market for city, to cost \$15,000.

Millville, N. J.—Council has adopted resolution urging the Cumberland County Board of Freeholders to place a bridge over Maurice River at Main st.

Troy, N. Y.—Ordinances authorizing \$180,000 bond issue for purchase of land and construction of garbage disposal plant have been approved by Board of Estimate and Apportionment.

Cincinnati, O.—Bids will be readvertised for purchase of \$3,500 automobile for Board of Control.

Fairmont, W. Va.—Consolidated Coal Company are constructing model town near town of Jenkins, Letcher County, Ky., and will construct a boulevard several miles long and a lake one mile wide on the shores of which the corporation offices will be located. Electric and water plants are also planned.

#### CONTRACTS AWARDED

Wilmington, Del.—By Board of Police Commissioners to erect the new garage for the Police Department in the rear of City Hall to Alfred Downward, \$950; other bidders, their figures and the time in which they agreed to do the work follow: William H. Lingo, \$1,276, twenty-five days; S. H. McCoy, \$1,087, twenty days; C. H. Tindall, \$1,140, twenty-five days; A. S. Reed, \$1,100, sixty days; William H. Jones, \$1,089, thirty days.

Spokane, Wash.—To S. G. Morin for renovating and adding two more stories to county jail, \$20,969; plumbing work will be done by the Sarginson Plumbing Co., \$1,798, and P. J. Dowling & Co., heating plant, \$1,200.



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Joint

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to eight branch.

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ALL SIZES—ANY STYLE—FOR ANY MACHINE  
GET OUR PRICES BEFORE PLACING ORDERS

Glauber Brass Mfg. Co. Cleveland



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EUREKA, 4 ply PARAGON, 3 ply RED CROSS, 2 ply  
Always gives satisfaction. Send for catalog

Eureka Fire Hose Manufacturing Co.

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Columbus, Ohio.; Atlanta, Ga.; Dallas, Texas; Minneapolis, Minn.;  
Denver, Colo.; Seattle, Wash.; Syracuse, N. Y.; Detroit, Mich.;  
Omaha, Nebr.; San Francisco, Calif.

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### Police Signal Systems for Municipalities

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Write for information regarding our type "C" System, which is specially adapted to the requirements of small cities and towns.

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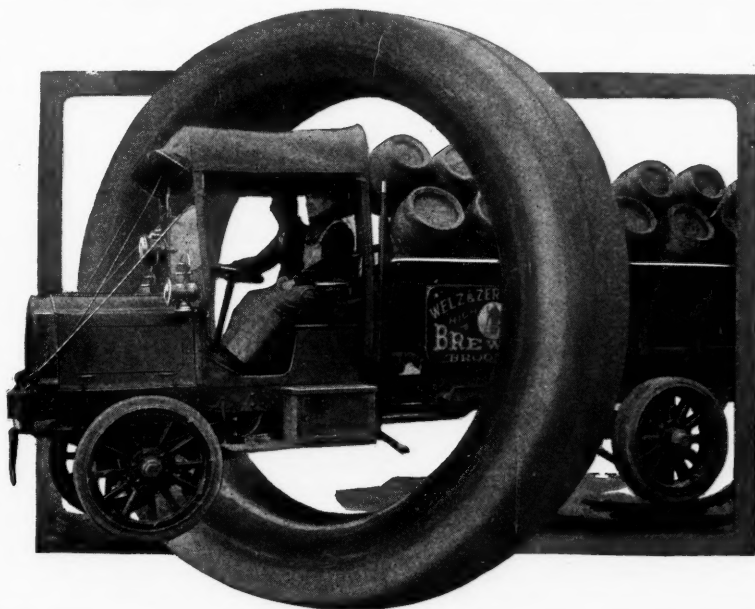
#### AGENCIES

Boston, Mass., 178 Devonshire St.  
Pittsburgh, Pa., 731 Wabash  
Building.  
Chicago, Ill., 626 Monadnock  
Building.  
San Francisco, Cal., 915 Postal  
Building.

Seattle, Wash., 326 Central Bldg.  
Cincinnati, Ohio, 1309 Traction  
Building.  
Kansas City, Mo., 608 Dwight  
Building.  
Utica, N. Y., 106 Liberty St.

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## Goodrich Wireless Tires for Motor Trucks



We have used "Goodrich" Wireless tires on a three ton Packard truck, operated on Long Island roads, to very good advantage.

They prove for themselves just what the Goodrich Company claim, in fact even a little better, as we got 15,000 miles out of the front tires and 10,000 miles out of the rear tires and had no trouble in having them come loose.

Yours very truly

WELZ & VERWECK,

(Signed) Per John Welz

**The B. F. Goodrich Company**  
Akron, Ohio

## PROPOSALS

## BRICK AND TERRA COTTA SEWERS.

Cumberland, Md.

Sealed proposals for furnishing all labor and materials for the construction of about 1,950 feet of terra cotta sewers and about 679 feet of brick sewers, will be received by the Commissioner of Streets and Public Property, of Cumberland, Md., at the office of the City Engineer, on or before 2 o'clock p. m. July 21st, 1911.

All work to be done in accordance with the plans and specifications, which are now on file at the office of Leander Schaidt, City Engineer.

All bids must be made on the blank forms as furnished by the Engineer, and proposed prices given both in words and figures, be signed by the bidder, with full name and address, and endorsed "Proposals for Mill Race Improvement."

Each bid must be accompanied by a properly certified check for Five hundred dollars (\$500.00) payable to the order of "The Mayor and City Council of Cumberland, Md.," which will be returned to the bidder, unless forfeited for failure to sign contract and furnish bond within 5 days after notification of acceptance of bid.

The Commissioner of Streets and Public Property reserves the right to reject any and all bids.

WARD M. EICHELBERGER,  
Commissioner Streets and Public Property.

## SEWAGE PUMPING AND DISPOSAL PLANTS.

Ligonier, Pa.

Sealed proposals will be received by the Ligonier Borough Council, at the Borough office, until 8 o'clock p. m. of the 1st day of August, 1911, for furnishing the materials and constructing a sewage pumping plant and a sewage purification plant.

The pumping plant will consist of two 4-in. x 5-in. centrifugal vertical shaft pumps, electrically driven and controlled, with receiving chamber, pump pit, building, etc.

The purification plant will consist of sedimentation tanks, sprinkling filters, sludge beds, etc.

The entire installation is designed to take care of 200,000 gallons of sewage daily and will be built according to plans and specifications prepared by F. H. Shaw, Cons. Engr.

Proposals must be addressed to the Secretary of Council, Ligonier, Pa., and must contain a certified check for the sum of 5 per cent. of the amount of the bid, payable to the Treasurer of Ligonier Borough.

Plans and specifications and blank form of proposal may be obtained of the Secretary of Council or at the office of the Engineer. A deposit of \$5.00 on plans and specifications will be required.

The right is reserved to reject any or all bids.

LIGONIER BOROUGH COUNCIL,  
By IRA F. BRANT, Secretary.  
F. H. SHAW, Reading, Pa.,  
Engineer.

## REINFORCED CONCRETE RESERVOIR

Americus, Ga.

Sealed proposals will be received by the Mayor and City Council of Americus, Georgia, until July 17, 1911, for the construction of a reinforced concrete reservoir, sixty feet in diameter by thirteen feet in depth. Plans and specifications on file at the office of the City Engineer. No bid will be considered unless accompanied with certified check for five per cent of the bid as evidence of good faith. The right is reserved to reject any or all bids.

T. N. HAWKES,  
Clerk and Treasurer.  
J. B. ANSLEY,  
City Engineer. (26-5-12)

## PROPOSALS

## SEWERS AND PAVING.

Americus, Ga.

Sealed proposals will be received by the Mayor and City Council of Americus, Ga., until 7 P. M., July tenth, 1911, for the construction of pipe sewers and appurtenances approximately twelve miles, also for the paving of its business streets aggregating approximately fifty thousand square yards; a deposit of five dollars will be required when the plans and specifications are taken, which are on file in city engineer's office; the Council reserves the right to reject any or all bids.

T. H. HAWKES,  
Clerk and Treas.  
J. B. ANSLEY,  
City Engineer. (5-12-19)

## BRIDGE

Fitchburg, Mass.

Sealed proposals, addressed to the Board of Street Commissioners of the City of Fitchburg, Mass., and endorsed "Proposals for the Construction of the Fifth Street Viaduct," will be received by the said Board of Street Commissioners at the office of the City Engineer, Clerk of the Board, Fitchburg, Mass., until 5 p. m., of Monday, the 17th day of July, 1911, and on that day, at 7.30 p. m., will be publicly opened and read. The entire work is to be let in one contract.

Each bidder must make a personal examination of the location of the site of the viaduct.

Each bid must be accompanied by a certified check for five thousand dollars (\$5,000), payable to the City of Fitchburg; said check to be returned to the bidder unless he fails to execute the contract, should it be awarded him.

A bond for twenty-five thousand dollars (\$25,000) will be required for the faithful performance of the contract, the surety to be a substantial surety company, satisfactory to the Board of Street Commissioners and authorized by law to do business in the State of Massachusetts.

Prices proposed must cover all the expenses incidental to the completion of the works in full conformity with the specifications and contract.

The engineer's estimates of the quantities of work to be done are as follows:

Earth excav., in foundations..	2,500 cu. yds.
Rock excav., in foundations..	85 cu. yds.
Cinder filling under sidewalks	190 cu. yds.
Gravel fill on r'dway of bridge	470 cu. yds.
Steel bars for concrete reinforcement .....	87.5 tons
Structural steel, erected in place .....	292.5 tons
Concrete 1:3:5 Class A.....	1,176 cu. yds.
Concrete 1:3:5 Class B.....	99 cu. yds.
Concrete 1:2½:4½ Class C..	988 cu. yds.
Concrete 1:2½:4½ Class D..	315 cu. yds.
Concrete 1:2½:4 Class E.....	1,566 cu. yds.
Concrete 1:2½:4 Class F....	88 cu. yds.
Hand rails, erected, complete.	1,378 lin. ft.
Scrubbing concrete surfaces..	1,500 sq. ft.
Painting concrete surfaces..	15,000 sq. ft.
Storm water inlets and drain pipes .....	2
Electric conduits .....	1,378 duct ft.
Lamp posts, single lights....	8
Lamp posts, cluster lights...	6
Electric wiring .....	

These quantities are approximate only, and the City of Fitchburg expressly reserves the right of increasing or diminishing the same as may be deemed necessary by its engineer.

Plans may be seen and specifications and forms of proposals obtained at the office of Timothy J. Sheehan, City Engineer, Fitchburg, Mass., and at the office of James H.

## PROPOSALS

Fuertes, Consulting Engineer, 140 Nassau Street, New York City, upon making a deposit of twenty-five dollars (\$25). This deposit will be given back to the bidder upon the return of the plans and specifications in good condition.

Duplicate bids must be filed at the office of the City Auditor, Frank D. Page.

The Board of Street Commissioners reserves the right to reject any or all bids should they deem it to be for the interest of the City of Fitchburg to do so.

T. J. SHEEHAN, Clerk.

(28, 5, 12)

## BOOK NOTICE

**The Art of Roadmaking.**—Treating of the Various Problems and Operations in the Construction and Maintenance of Roads, Streets, and Pavements. By Harwood Frost. Cloth, 9x6 in., illus., 17+ 544 pp. New York, The Engineering News Publishing Company, 1910. \$3.00.

This book is intended to give an outline of the history of road building, of the problems which confront the engineer in the location, construction, and maintenance of roads, and of the properties of the various roadmaking materials, in non-technical language suitable for the general reader. No originality as regards the contents or the presentation of new methods or ideas, is claimed, and in the compilation of the subject-matter technical periodicals, Government reports, and a few trade publications, have been drawn on and quoted, the object being to condense into a single volume the fundamental and essential principles of road-making as presented by the most reliable authorities. The book contains an extensive bibliography and a descriptive list of current books and pamphlets on the subject. The Contents are: Poem—"The Road"; Introduction; Part I, Preliminary Considerations: Resistances to Traction; Road and Pavement Economics; Principles Underlying the Selection of Pavements for Different Purposes. Part II, Country and Suburban Roads; Location of Country Roads; Construction and Protective Works; Material Used in Road Construction; Earth, Gravel, Sand and Clay Roads; Broken-Stone Roads; Roads in Mountainous Districts; Control and Prevention of Road Dust; State Aid Laws. Part III, City Streets and Pavements: The Design of City Streets; Stone Block Pavements; Brick Pavements; Wood Block Pavements; Asphalt Pavements; Concrete Pavements; The Cleaning and Sanitation of City Streets; Sidewalks, Curbs, and Gutters; Miscellaneous Roads and Pavements; The Roadside; Appendix; Index.

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